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Creating Energy Independence

Comparison of the 6th Edition Florida Building Energy Conservation Code with IECC 2018 & ASHRAE 90.1-2016

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Final Report

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Executive Summary

This study provides a comparison between the 6th Edition (2017) Florida Building Code, Energy Conservation (referred to here as the Florida Energy Code or FEC) and 2018 International Energy Conservation Code (IECC), based on approved 2015 to 2018 IECC changes included in the *International Code Council's Complete Revision History to the 2018 I-Codes* document. The Commercial tasks also include a comparison of changes between ASHRAE 90.1-2013 and ASHRAE 90.1-2016 based on addenda included in Standard 90.1-2016. The first part of the study involved developing commercial and residential code change listings based on the Revision History document that identify changes that have potential energy and cost impacts. The second part of the study provides a stringency evaluation and cost-benefit analysis for those changes that impact energy use, to provide guidance for the upcoming 2017 FEC to 2020 FEC change cycle.

The first part of the study has been completed for residential and commercial sections with the submission of the interim report on March 15, 2018 and presentation to the Energy TAC on March 30, 2018. The interim report submission included: (1) Residential 2018 IECC changes with respect to the 2015 IECC and 2017 Florida Energy Code, (2) Commercial 2018 IECC changes with respect to the 2015 IECC and 2017 Florida Energy Code, and (3) ASHRAE Standard 90.1-2016 Code changes with respect to the 2013 ASHRAE Standard 90.1. The code change listing and energy use impact summary are included as part of the appendix in this report for convenience.

The second part of this study is to provide a quantitative and cost-benefit analysis for those changes that impact energy use, and to provide guidance for the upcoming 2017 FEC to 2020 FEC code change cycle. The second part of the project has the following four subtasks:

- a. Cost Benefit Analysis of moving Residential Energy Code from 6th Edition FEC to IECC 2018 for those items that impact Energy Use
- b. Quantitative Comparison of Commercial Energy Code 6th Edition FEC vs. IECC 2018
- c. Quantitative Comparison of Commercial Energy Code 6th Edition FEC vs. ASHRAE 90.1-2016
- d. Cost Benefit Analysis of moving Commercial Energy Code from 6th Edition FECC to IECC 2018 & ASHRAE 2016 for those items that impact Energy Use

The residential section quantitative and cost-benefit analysis, subtask *a*, is presented in this report. Commercial section subtasks *b*, *c* and *d*, however, were predicated on DOE developing and providing the state the reference prototype buildings energy models and economic analyses data, as was indicated in our original proposal. Unfortunately due to budget delays, the DOE (PNNL) work was not completed in time and those tasks are delayed. A proposed plan is provided in the report.

This final report contains the residential section quantitative and cost-benefit analysis for those changes that impact energy use that provides guidance for the upcoming 2017 FEC to 2020. The authors have reviewed each change made to the 2018 IECC and evaluated whether this is likely to have any impact or is just a clarification. For the residential measures that have an impact, energy analysis is included. For the residential portion of the 2018 IECC there are only two

mandatory changes that would impact every home. One of those changes is for better sealing of duct boots which is estimated to reduce air leakage between attics and conditioned space. The other change is to increase the percentage of high efficacy lighting from 75% to 90%. Each of these measures proved to be highly cost effective and both are recommended for inclusion in the 7th edition of the FECC. Seven other changes are evaluated, each applying to a limited number of homes. A summary recommendation table is provided for each of these changes.

The appendix section contains summary of code change listing submitted as part of the interim report and include:

- Appendix A: Commercial 2018 IECC changes with respect to the 2015 IECC and 2017 Florida Energy Code
- Appendix B: ASHRAE Standard 90.1-2016 Code changes with respect to the 2013 ASHRAE Standard 90.1
- Appendix C: Residential 2018 IECC changes with respect to the 2015 IECC and 2017 Florida Energy Code.

Contents

Executive Summary	2
Contents	4
Introduction.....	5
Prescriptive and Performance compliance option stringency differences between the 2017 FECC and 2018 IECC	6
Prescriptive Compliance Simulations	6
Individual Code Changes.....	8
Performance Compliance Simulations.....	11
Cost Benefit Analysis of moving Residential Energy Code from 6 th Edition FECC to IECC 2018 for those items that impact Energy Use	16
Discussion.....	18
Conclusions.....	21
Acknowledgements.....	22
References.....	22
Appendix A: Commercial 2018 IECC Changes Review Summary.....	23
Appendix B: ASHRAE Standard 90.1-2016 Code Change Review Summary	71
Appendix C: Residential 2018 IECC Changes Review Summary.....	79

Introduction

This project was initiated because the state of Florida desired to compare the 6th Edition Florida Energy Conservation Code (FECC) with the 2018 Edition of the International Energy Conservation Code (IECC) and ASHRAE Standard 90.1-2016 for stringency, and also perform a cost-benefit analysis of updating the 6th Edition FECC to the newer FECC for those elements that impact energy use.

A review of the commercial and residential changes between the 6th Edition (2017) FECC and 2018 IECC which included identification of the changes that had potential energy and compliance cost impacts was completed for the interim report of this project.

The appendix section contains summary of code change listing submitted as part of the interim report and include:

- Appendix A: Commercial 2018 IECC changes with respect to the 2015 IECC and 2017 Florida Energy Code
- Appendix B: ASHRAE Standard 90.1-2016 Code changes with respect to the 2013 ASHRAE Standard 90.1
- Appendix C: Residential 2018 IECC changes with respect to the 2015 IECC and 2017 Florida Energy Code.

The second part of this study is to provide a quantitative and cost-benefit analysis for those changes that impact energy use, and to provide guidance for the upcoming 2017 FEC to 2020 FEC code change cycle. The second part of the project has the following four subtasks:

- a. Cost Benefit Analysis of moving Residential Energy Code from 6th Edition FEC to IECC 2018 for those items that impact Energy Use
- b. Quantitative Comparison of Commercial Energy Code 6th Edition FEC vs. IECC 2018
- c. Quantitative Comparison of Commercial Energy Code 6th Edition FEC vs. ASHRAE 90.1-2016
- d. Cost Benefit Analysis of moving Commercial Energy Code from 6th Edition FECC to IECC 2018 & ASHRAE 2016 for those items that impact Energy Use

The residential section quantitative and cost-benefit analysis, subtask *a*, is presented in this report. Commercial section subtasks *b*, *c* and *d*, however, were predicated on DOE developing and providing the state the reference prototype buildings energy models and economic analyses data, as was indicated in our original proposal. These three subtasks have been awaiting the DOE releases for some time. The latest indications from DOE (PNNL) are that a portion of the awaited release, namely the ASHRAE 2016 reference energy code model, are likely to be released in June 2018. The full report containing the economic analysis for ASHRAE 90.1-2016 code is expected by the end of 2018. Note that there is no firm date or indications from DOE (PNNL) that the IECC 2018 reference energy models and analyses will be forthcoming.

As a result FSEC proposes modifications to our schedule and budget as follows: (1) since we do not have definite information on whether PNNL will develop the prototype buildings reference energy code model and analyses for IECC-2018, we propose that FSEC assume that task (subtask *b*) for an additional budget and schedule, which will be prepared if the Florida Building Commission should approve taking this option; (2) with DOE targeting release of the ASHRAE 90.1-2016 work in June, 2018, we proposed to move that part of our effort beyond July, 2018.

Subtask *c* will begin upon receiving the ASHRAE 2016 prototypes from DOE. Subtask *d* is contingent upon receipt of ASHRAE 2016 analyses from PNNL by the end of the year and the decision on subtask *b* being assigned to FSEC. FSEC has submitted a revised estimated budget and schedule for subtask *b*, *c* and *d* to Florida DBPR for consideration.

This remainder of this report summarizes the two remaining project tasks:

- 1) Use EnergyGauge[®] USA computer simulations to estimate the overall Prescriptive and Performance compliance option stringency differences between the 2017 FECC and 2018 IECC
- 2) Provide a cost benefit analysis of moving the residential Energy Code from the 6th Edition FECC to the 2018 IECC for those items that impact energy use.

Prescriptive and Performance compliance option stringency differences between the 2017 FECC and 2018 IECC

EnergyGauge USA energy modeling software approved for 6th Edition FECC compliance calculations was used to compare the overall Prescriptive and Performance compliance method stringency differences between the 2017 FECC and 2018 IECC.

Prescriptive Compliance Simulations

The Prescriptive simulations compare a 6th Edition (2017) FECC compliant all electric 2,000 sq. ft., 1-story, single-family sample home with the same home that is 2018 IECC compliant in three Florida cities: Miami, Tampa and Jacksonville. Miami represents IECC Climate Zone 1 and Tampa and Jacksonville are both in Climate Zone 2.

Outside of a new heated slab insulation requirement¹, no Prescriptive changes that affect stringency were identified between the 2015 and 2018 IECC. Two mandatory requirement changes were however identified that apply to all compliance calculations—an HVAC register boot air barrier criteria language change that will in effect lower project ACH50s slightly,² and a high efficacy lighting requirement increase from 75% to 90%. These two changes were added to 2015 IECC project characteristics to create the 2018 IECC project characteristics for the 2017 FECC vs. 2018 IECC comparison. To differentiate which stringency effects were from the 2015 IECC vs. from the 2018 IECC, simulations runs were made for sample homes with 2017 FECC characteristics, 2015 IECC characteristics and 2018 IECC characteristics. Prescriptive comparison house characteristics are shown in Table 1.

¹ Note “d” under Table R402.1.2 adds a requirement for R-5 insulation to be added under heated slabs, but the change is unlikely to apply to many Florida homes and was not evaluated.

² [Previous measured analysis by FSEC](#) indicates register boot air leakage is common. However, the impact on whole house air leakage on average is about 0.2 ACH50.

Table 1. Prescriptive Comparison House Characteristics.

Component	Climate Zone 1		Climate Zone 2	
	IECC 2015 / 2018	2017 FECC	IECC 2015 / 2018	2017 FECC
Conditioned floor area (ft ²)	2,000	2,000	2,000	2,000
Foundation type	SOG	SOG	SOG	SOG
Floor perimeter R-value	0	0	0	0
Wall type	Wood Frame	Wood Frame	Wood Frame	Wood Frame
Wall insul. R-value	13	13	13	13
Wall solar absorptance	0.75	0.75	0.75	0.75
Window area (ft ²)	300	300	300	300
Window U-factor	0.5	0.5	0.4	0.4
Window SHGC	0.25	0.25	0.25	0.25
Roofing material	Comp. Shingles	Comp. Shingles	Comp. Shingles	Comp. Shingles
Roof solar absorptance	0.92	0.92	0.92	0.92
Attic ventilation	Vented 1/300	Vented 1/300	Vented 1/300	Vented 1/300
Ceiling insul. R-value	30	30	38	38
Envelope ACH50 (air chng. / hour @ 50pa)	5 / 4.8	7	5 / 4.8	7
HP SEER, HSPF	14, 8.2	14, 8.2	14, 8.2	14, 8.2
AHU location	Garage	Garage	Garage	Garage
Duct insul. R-value	8	8	8	8
Duct location	Attic	Attic	Attic	Attic
Duct leakage	Q _{nout} = 0.04	Q _{nout} = 0.04	Q _{nout} = 0.04	Q _{nout} = 0.04
Heating & Cooling set points (°F)	72 & 75	72 & 75	72 & 75	72 & 75
# of bedrooms	3	3	3	3
Water heater size (gallons)	50	50	50	50
Water heater EF (Electric)	0.945	0.945	0.945	0.945
Water heater location	Garage	Garage	Garage	Garage
Water heater heat trap	No	Yes	No	Yes
High Efficacy Lighting (%)	75 / 90	75	75 / 90	75

All houses were modeled with wood frame walls. Since the 2015 and 2018 IECC and 2017 FEC all use the same wall reference U-factors, there should be no appreciable differences in results for mass walls.

After each Prescriptive minimum house was entered in EnergyGauge USA, annual simulations were run to estimate cooling, heating and water heating energy use. Table 2 shows the simulation results for the sample home in each of the three modeled cities. Positive differences between the FEC and IECC energy use values mean that the 2017 FEC is less stringent than the 2015 or 2018 IECC and those values are given in red text, while negative differences mean the FEC is more stringent than the IECC.

Table 2. Prescriptive Comparison Annual Energy Use Estimates.

City		Heating (kWh/yr)	Cooling (kWh/yr)	Wtr Htg (kWh/yr)	Total (kWh/yr)
Miami	2017 FEC	128	5961	2168	8257
	2015 IECC	114	5718	2195	8027
	2018 IECC	114	5636	2195	7945
	Diff. b/t 2015 and 2018 IECC	0	82	0	82
	Diff. b/t FEC & 2015 IECC	14	243	-27	230
	Diff. b/t FEC & 2018 IECC	14	325	-27	312
Tampa	2017 FEC	636	4450	2399	7485
	2015 IECC	571	4251	2429	7251
	2018 IECC	568	4188	2429	7185
	Diff. b/t 2015 and 2018 IECC	3	63	0	66
	Diff. b/t FEC & 2015 IECC	65	199	-30	234
	Diff. b/t FEC & 2018 IECC	68	262	-30	300
Jacksonville	2017 FEC	1732	3097	2642	7471
	2015 IECC	1585	2966	2674	7225
	2018 IECC	1580	2918	2674	7172
	Diff. b/t 2015 and 2018 IECC	5	48	0	53
	Diff. b/t FEC & 2015 IECC	147	131	-32	246
	Diff. b/t FEC & 2018 IECC	152	179	-32	299

The tables show that for Prescriptive compliance, the 2017 FEC is consistently somewhat less efficient than the 2015 and 2018 IECC in all three cities. The State is required to indicate their compliance with the latest version of the IECC. Last compliance period our report indicated that Florida may comply if 92% of the homes complied by the Performance method. The increase in stringency in the 2018 IECC from lighting and HVAC register boot sealing will make it more difficult to comply unless the same changes are made in Florida’s code.

Note that Table 2 shows very small differences for heating. That is because these simulations take into account the internal gain impact of less lighting. Thus, although the reduction in lighting saves energy on illumination, it increases heating energy slightly. For example, the lighting change by itself (90% lighting and 5.0 ACH50) for Tampa changes the heating load to 581 kWh/yr. The infiltration reduction due to the registry boot code change by itself (75% lighting and 4.8 ACH50) reduces the heating load to 557 kWh/yr. The combined effect offsets such that the 2018 IECC heating difference in Tampa, as shown in Table 2, is just 3 kWh/yr.

Individual Code Changes

There are also a number of changes between these two codes that may apply to a very limited number of projects as opposed to the majority or typical project. An example is a project that incorporates buried ducts. To provide stringency analysis for these changes, a second group of simulations or calculations were run for seven additional, individual 2015 to 2018 IECC

changes. For these simulations, the 2015 IECC Prescriptive house was modified as needed to create the base 2015 IECC house and simulated, and then further modified to reflect the 2018 IECC change and the two runs compared. These simulations were run for Tampa only.

Individual Code Change #1: 2015 to 2018 ICC code change #RE8-16 provides a new Section R202 definition to clarify the meaning of “opaque door” as being “a door that is not less than 50 percent opaque in surface area.” The 2015 ICC has no definition of opaque door. Section R405.5.3.3 of the 2017 FEC starts out: “For doors that are opaque or where the glass is less than one-third of the area of the door” otherwise opaque doors are not defined.

Depending on how one interprets the change, the difference may be substantial in upscale homes which have a number of French doors or faux French doors. One might interpret it to mean that such doors are considered opaque and thus don’t have to follow SHGC requirements. Alternatively, it may be interpreted that for performance the definition overrides Section R405.5.3.3.

French doors are often around 50% opaque and 50% transparent. As an example of this impact, a home was simulated with three, west facing, 6 ft. by 8 ft. French doors. The home was simulated with 50% of the French door area as window glass with characteristics of 0.4 U-factor, 0.25 SHGC windows and 50% area as opaque door (U-factor of 0.40). This is consistent with current Florida code.

A comparison run was made for the same exact house except no glass was added for the French doors, and the entire 144 square-foot area was modeled as opaque doors. This might be interpreted under the 2018 IECC. Simulation results are shown in Table 3. The combined heating and cooling difference in Tampa is 147 kWh/yr.

Table 3. Individual Code Change #1: 3x 6 ft. x8 ft. West Facing all Opaque Doors vs. 50% Glass.

City		Heating (kWh/yr)	Cooling (kWh/yr)	Wtr Htg (kWh/yr)	Total (kWh/yr)
Tampa	50% Opaque and 50% Glass	728	4432	2429	7589
	3 Opaque Doors (no glass)	683	4330	2429	7442
	Diff.	45	102	0	147

This new definition, meant to be helpful, might be confusing. Knowing this definition how does one apply it for prescriptive or performance?

Individual Code Change #2: 2015 to 2018 ICC code change #RE100-16 adds new code Section R403.3.7 which specifies two separate conditions under which ducts are considered as being inside conditioned space:

- 1) For duct systems that are completely within the continuous air barrier and building thermal envelope
- 2) For buried ducts that meet stipulated air handler location, duct leakage, and ceiling insulation R-value requirements.

It is unclear what effect if any the first definition would have on the code as there is already an exception to duct testing where ducts are located entirely within the building thermal envelope.

To simulate the stringency impacts of the first condition, the 2015 IECC Tampa house was modeled with a vented attic and ducts in the main conditioned space versus with ducts in a sealed attic. The Prescriptive Climate Zone 2 minimum ceiling R-value is 38, so runs were made with both R-38 roof deck insulation and more typical R-22 roof deck insulation. Duct leakage was set at $Q_{n_{out}} = 0.02$ in both cases. Simulation results are shown in Table 4.

Table 4. Individual Code Change #2a: Vented Attic with R-8 ducts in Main vs. Sealed Attic with R8 ducts in Attic; $Q_{n_{out}} = 0.02$ for Each.

City		Heating (kWh/yr)	Cooling (kWh/yr)	Wtr Htg (kWh/yr)	Total (kWh/yr)
Tampa	R-4.2 Ducts in Cond. Space	457	3559	2429	6445
	R-25 Ducts in Attic	531	3825	2431	6787
	Diff.	-74	-266	-2	-342

For the second Section R403.3.7 condition under which ducts are considered as being inside conditioned space, buried ducts, the 2015 IECC Tampa house was modeled with a vented attic, R-4.2 ducts in conditioned space, $Q_{n_{out}} = 0.02$ duct leakage and garage air handler, versus a vented attic with R-25 ducts in attic, $Q_{n_{out}} = 0.015$ and air handler in cond. space. Simulation results are shown in Table 5.

Table 5. Individual Code Change #2b: Vented Attic with Total Ceiling Insulation of R-38, and R-4.2 Ducts in Conditioned Space vs. Same Vented Attic with R-25 Ducts in Attic.

City		Heating (kWh/yr)	Cooling (kWh/yr)	Wtr Htg (kWh/yr)	Total (kWh/yr)
Tampa	R-4.2 Ducts in Cond. Space	457	3559	2429	6445
	R-25 Ducts in Attic	481	3777	2429	6687
	Diff.	-24	-218	0	-242

Individual Code Change #3: 2015 to 2018 ICC code change #RE121-16 adds a 1.2 cfm/watt minimum whole-house mechanical ventilation fan efficacy requirement for HRVs and ERVs to Table R403.6.1. To simulate the stringency impacts of this requirement, the 2015 IECC Tampa house was modeled with a base 1.0 cfm/watt ERV and a 1.2 cfm/watt ERV for a 60 cfm system. In each case the exchange efficiency was 55%. Simulation results are shown in Table 6 with mechanical vent energy included in the heating and cooling values and the simulation also accounting for any heat from the fan motor released to the incoming air.

Table 6. Individual Code Change #3: 1.0 cfm/watt ERV vs. 1.2 cfm/watt ERV.

City		Heating (kWh/yr)	Cooling (kWh/yr)	Wtr Htg (kWh/yr)	Total (kWh/yr)
Tampa	1.0 cfm/watt	757	4849	2429	8035
	1.2 cfm/watt	740	4780	2429	7949
	Diff.	17	69	0	86

Individual Code Change #4: 2015 to 2018 ICC code change #RE149-16 modifies the performance compliance mechanical ventilation standard reference design’s energy use equation to use fan efficacy requirements in Table R403.6.1 instead of a fixed efficacy of 2.2 cfm/watt. The 2017 FEC annual reference ventilation energy use is $(0.03942*2000)+(29.565*4) = 197$ kWh for a 2,000 square foot, three bedroom sample house. The 2018 IECC annual reference ventilation energy use for a 2.8 cfm/watt exhaust fan (from Table R403.6.1) is $(1/2.8)*(0.0876*2000+65.7*4) = 156$ kWh for the same house. This change would increase the stringency of the code by making the reference home more efficient.

Individual Code Change #5: 2015 to 2018 ICC code change #CE177-16 Part II makes three revisions to the pool and spa cover exception text: “Where more than 7075 percent of the energy for heating, computed over an operation season of at least 3 calendar months, is from site-recovered energy, such as from a heat pump or solar energy source on-site renewable energy system, covers or other vapor-retardant means shall not be required.” Considering a 30 ft. by 15 ft., uncovered, screened pool in central Florida using 180 million Btu for heating over a 12 month swimming season (about 210 days requiring some heating), this code change would require an additional 9 million Btu per year (180×0.05) from site-recovered energy. A typical efficiency solar pool collector would require about 990 sq. ft. for the base case so about 50 square feet of additional collector if everything was linear. If this increase was proportioned over three cold months, a heat pump would need to be 4,000 Btu/h larger.

Individual Code Change #6: 2015 to 2018 ICC code change #RE152-16 adds the following exception to the performance compliance thermal distribution systems standard reference design: “For non-ducted heating and cooling systems not having a fan, the standard reference design distribution system efficiency (DSE) shall be 1.” To simulate the stringency impacts of this requirement, the 2015 IECC Tampa house was modeled with DSE values of 0.88 and 1.0. Simulation results are shown in Table 7.

Table 7. Individual Code Change #6: Reference DSE = 0.88 vs. 1.0 for Non-ducted Heating and Cooling Systems.

City		Heating (kWh/yr)	Cooling (kWh/yr)	Wtr Htg (kWh/yr)	Total (kWh/yr)
Tampa	DSE = 1.0	444	3454	2429	6327
	DSE = 0.88	501	3926	2429	6856
	Diff.	-57	-472	0	-529

Although rare in Florida, this is perhaps the most significant change of the ones modeled, as it would make it more difficult to comply for unducted, fanless systems, effectively removing the credit of having these systems.

Performance Compliance Simulations

The Performance compliance stringency comparison includes four sample homes: one (1) 1-story single family home, one (1) 2-story single-family sample home, one (1) multi-family sample home, and one (1) additional sample home with skylights. Performance comparisons were made in the same three cities as the Prescriptive comparisons. These houses vary from the ones used for the Prescriptive compliance comparison in that instead of using Prescriptive

minimum component and equipment efficiencies, they use “reference” component and equipment efficiencies (discussed further below). House characteristics are shown in Table 8.

Table 8. Performance Comparison House Characteristics.

Component	Climate Zone 1		Climate Zone 2	
	2018 IECC	2017 FEC	2018 IECC	2017 FEC
Conditioned floor area (ft ²) (one story / two story / multi)	2,000 / 2,400 / 1,200	2,000 / 2,400 / 1,200	2,000 / 2,400 / 1,200	2,000 / 2,400 / 1,200
Foundation type	SOG	SOG	SOG	SOG
Floor perimeter R-value	0	0	0	0
Wall type	Wood Frame	Wood Frame	Wood Frame	Wood Frame
Wall insul. R-value*	9.56	9.56	9.56	9.56
Wall solar absorptance	0.75	0.75	0.75	0.75
Common Wall Area (multi-family only)	990	990	990	990
Window area (ft ²) (one story / two story / multi)	300 / 360 / 72	300 / 360 / 72	300 / 360 / 72	300 / 360 / 72
Skylight area (ft ²) (skylight home only)***	0	22	0	22
Window U-factor	0.5	0.5	0.4	0.4
Window SHGC	0.25	0.25	0.25	0.25
Roofing material	Comp. Shingles	Comp. Shingles	Comp. Shingles	Comp. Shingles
Roof solar absorptance	0.75	0.75	0.75	0.75
Attic ventilation	Vented 1/300	Vented 1/300	Vented 1/300	Vented 1/300
Ceiling insul. R-value*	24	24	28.7	28.7
Envelope ACH50 (air chng/hr @ 50pa) [†]	4.8	7	4.8	7
HP SEER / HSPF	14 / 8.2	14 / 8.2	14 / 8.2	14 / 8.2
AHU location	Garage if tested / cond. if not tested	Garage if tested / cond. if not tested	Garage if tested / cond. if not tested	Garage if tested / cond. if not tested
Duct insul. R-value (Supply / Return)	6 or 8 / 6 or 8**	6 / 6	6 or 8 / 6 or 8**	6 / 6
Duct location	Attic if tested / cond. if not tested	Conditioned space	Attic if tested / cond. if not tested	Conditioned space
Duct leakage	Qn _{out} = 0.04 / DSE = 0.88**	DSE = 0.88	Qn _{out} = 0.04 / DSE = 0.88**	DSE = 0.88
Heating / Cooling set points (°F)	72 / 75	72 / 75	72 / 75	72 / 75
# of bedrooms (one story / two story / multi)	3 / 4 / 2	3 / 4 / 2	3 / 4 / 2	3 / 4 / 2
Water heater size (gallons)	50	50	50	50
Hot water use: 3 bdrm. / 4 / 2 bdrm. (gal/day)	60 / 70 / 50	60 / 70 / 50	60 / 70 / 50	60 / 70 / 50
Water heater EF (Electric)	0.945	0.945	0.945	0.945
Water heater location	Garage	Garage	Garage	Garage
Water heater heat trap	No	Yes	No	Yes
High Efficacy Lighting	90%	75%	90%	75%

* Framing fraction = 0.0

** Seven houses were run for each IECC column in Table 8 representing the reference home. One IECC house had 2,000 square feet of conditioned space and non-tested R-6 ducts in conditioned space, while another had 2,000 square feet and R-8 ducts in unconditioned space and leakage of $Q_n = 0.04$. Two of the other IECC houses (the 2,400 square foot two story and skylight house), were simulated with the same duct variations. Since the multi-family unit had another conditioned unit above it, it was only simulated with ducts in conditioned space. All FECC reference houses simulated had R-6 ducts in conditioned space.

*** The 2017 FECC skylight house is the one story single family home with 22 square feet of 0.75 (CZ 1) or 0.65 (CZ 2) U-factor and 0.25 SHGC skylight added (no skylight area was added to the 2018 IECC house as the 2018 IECC reference has no skylight area).

† 2018 IECC ACH50 includes effect of mandatory HVAC register boot sealing change discussed in Prescriptive Compliance Simulations section.

All houses were again modeled with wood frame walls. Since the 2018 IECC and 2017 FEC both use the same wall reference U-factors, there should be no appreciable differences in results for mass walls. There are some cases not included in the simulations where other energy use differences might occur such as houses with mechanical ventilation or unducted HVAC systems. Multi-family units were “embedded”-- surrounded on three sides and above and below with conditioned neighbor units.

After each house was entered in EnergyGauge USA, annual simulations were run to estimate cooling, heating and water heating energy use for the reference 2018 IECC house and reference 2017 FECC house. The reference house is a house that has the same conditioned floor, wall and ceiling areas as a proposed project house, but with other characteristics such as window area and efficiency levels stipulated by the code’s rule set³. Since the total annual energy costs (IECC) or annual loads (FEC) of a reference house represent the minimum Performance code level, using the reference house for these simulations provides a comparison of each code’s minimum Performance compliance efficiency.

The 2018 IECC includes a reference stipulation for both tested and untested duct systems, so IECC runs were made for each option. IECC reference duct and air handler locations are however not stipulated. Since the IECC allows tested ducts in unconditioned space, tested duct systems were modeled in an unconditioned attic with air handlers in the garage. Per IECC requirements for untested duct systems, untested ducts were modeled with the ducts and air handler in conditioned space. Since most duct systems in Florida are installed in unconditioned attics⁴, energy use results were weighted 80% for tested ducts in the attic and 20% for untested ducts in conditioned space. Since the ducts of the embedded multi-family units are in conditioned space, these units were only modeled with the ducts and air handler in conditioned space.

Table 9 shows the estimated space heating, cooling, water heating and total energy use for the 2,000 sq. ft. one story house in each of the three modeled cities. Table 10 shows the same results for the 2,400 sq. ft. two story house, and Table 11 for the multi-family house. Positive differences between the Florida Code (FEC) and weighted IECC energy use values again mean

³ See Section R405 and Table R405.5.2(1) of the 2015 IECC and 2017 FEC for more information on reference houses.

⁴ A 2013 code compliance form analysis report by the University of Florida (Issa 2013) found sampled 2010 - 2012 homes to have less than 15% of supply ducts in conditioned space; around 30% of return ducts were found to be in conditioned space for the same three years. A 2012 FSEC code compliance study (Withers et al. 2012) found 96.8% of sampled new Florida homes to have supply ducts in the attic.

that the 2017 FEC is less stringent than the 2018 IECC while negative differences mean the FEC is more stringent than the IECC.

Table 9. One Story House Performance Comparison Annual Energy Use Estimates.

City		Heating (kWh/yr)	Cooling (kWh/yr)	Wtr Htg (kWh/yr)	Total (kWh/yr)
Miami	2017 FECC	137	5695	2168	8000
	Wtgd. 2018 IECC	134	5603	2195	7932
	Diff.	3	92	-27	68
Tampa	2017 FECC	639	4299	2400	7338
	Wtgd. 2018 IECC	624	4252	2430	7306
	Diff.	15	47	-30	32
Jacksonville	2017 FECC	1699	3049	2642	7390
	Wtgd. 2018 IECC	1678	3002	2675	7355
	Diff.	21	47	-33	35

Table 10. Two Story House Performance Comparison Annual Energy Use Estimates.

City		Heating (kWh/yr)	Cooling (kWh/yr)	Wtr Htg (kWh/yr)	Total (kWh/yr)
Miami	2017 FECC	184	6721	2507	9412
	Wtgd. 2018 IECC	182	6625	2535	9342
	Diff.	2	96	-28	70
Tampa	2017 FECC	772	5315	2776	8863
	Wtgd. 2018 IECC	770	5273	2806	8848
	Diff.	2	42	-30	15
Jacksonville	2017 FECC	1920	3909	3057	8886
	Wtgd. 2018 IECC	1932	3864	3089	8885
	Diff.	-12	45	-32	1

Table 11. Multi-family Performance Comparison Annual Energy Use Estimates.

City		Heating (kWh/yr)	Cooling (kWh/yr)	Wtr Htg (kWh/yr)	Total (kWh/yr)
Miami	2017 FECC	13	2532	1837	4382
	2018 IECC	8	2336	1866	4210
	Diff.	5	196	-29	172
Tampa	2017 FECC	80	2107	2022	4209
	2018 IECC	56	1958	2051	4065
	Diff.	24	149	-29	144
Jacksonville	2017 FECC	207	1662	2216	4085
	2018 IECC	143	1557	2246	3946
	Diff.	64	105	-30	139

Table 12 shows the estimated space heating, cooling, water heating and total energy use for the 2,000 sq. ft. one story house skylight simulations. For these runs, since the 2017 FECC reference includes skylight area for houses with proposed skylights but the 2018 IECC does not, the FECC houses include 22 sq. ft. of skylights (representing the reference area for 3x 2 ft. by 4 ft. proposed skylights) and the 2018 IECC does not include skylight area (so energy use is the same as in Table 9 above). Positive differences between the FECC and weighted IECC energy use values again mean that the 2017 FECC is less stringent than the 2018 IECC while negative differences mean the FECC is more stringent than the IECC.

Table 12. Skylight Performance Comparison Annual Energy Use Estimates.

City		Heating (kWh/yr)	Cooling (kWh/yr)	Wtr Htg (kWh/yr)	Total (kWh/yr)
Miami	2017 FECC	144	5804	2168	8116
	Wgted. 2018 IECC	134	5603	2195	7932
	Diff.	10	201	-27	184
Tampa	2017 FECC	665	4410	2400	7475
	Wgted. 2018 IECC	624	4252	2430	7306
	Diff.	41	158	-30	169
Jacksonville	2017 FECC	1754	3132	2642	7528
	Wgted. 2018 IECC	1678	3002	2675	7355
	Diff.	76	130	-33	173

Adding skylights to the 2017 FECC reference for houses with proposed skylights reduced the stringency of the code for these cases. Comparing these results with the Table 9 single story home results shows heating and cooling impacts for Miami, Tampa and Jacksonville of 116 kWh, 137 kWh and 138 kWh respectively.

Cost Benefit Analysis of moving Residential Energy Code from 6th Edition FECC to IECC 2018 for those items that impact Energy Use

Economic cost and benefit analysis was performed for the changes in the code⁵. Some of the costs are very small, e.g., increasing the percentage of high efficacy lighting from 75% to 90%, and thus the benefits far outweigh the costs. For a few measures the new 2018 IECC code provisions actually increase energy use and thus savings are negative. If those changes have any net cost, the benefit and costs are negative.

The cost and benefit analysis is summarized in Table 13. Red or negative values in savings means the change would use more energy. Negative values in costs mean the measure might save on first cost. Costs were determined from online sources or from measure shown in the right most column. In two cases the changes are to the reference house which means the proposed home could use any means to make up the stringency. In those instances a first cost or energy improvement of \$0.60 per kWh saved was used.

Two economic values are provided. One is net present value (NPV). Any positive net present value indicates that the measure is a smart economic choice relative to not making the investment. The second indicator is the savings to investment ratio (SIR). This is a ratio of the net present value of savings to the net present value of costs. If this value is 1.0 it is neutral. The higher the value the better the value of the option.

⁵ Economic assumptions for SIR calculation: Down payment 10%; Mortgage interest rate 4.86%; General inflation rate 2.0%; Energy inflation rate 1.65%; Discount rate 4.0%; Mortgage period 30 years; Analysis period 30 years.

Table 13. Cost and Benefits of moving from Florida code to IECC 2018 changes.

			Cost to	Est. Energy	Incremental	Est. Net Present	Savings/		
	Code Change (2017 FEC to 2018 IECC)	City	Comply w/ Change (\$)	Savings (kWh/yr)	Compliance Cost (\$)	Life (yrs.)	Value NPV	Investment SIR	Notes
Combined	HVAC register boot sealing	Miami	20-40						Est. 10 boots for 2,000 sq. ft. house, and gasketed Speediboosts cost \$2 - \$4 additional per boot 1.50 per 43W incandescent, 750 lumen bulb vs. 1.70 each LED \$27.22 for 16 LEDs 8.5W Philips Soft White 800 Lumens
			2.7	312	\$32.70	12	\$713.69	10.28	
Prescriptive	75% to 90% high efficacy lighting								
Combined	HVAC register boot sealing	Tampa	20-40						
Prescriptive	75% to 90% high efficacy lighting								
Combined	HVAC register boot sealing	Jacksonville	20-40						
Prescriptive	75% to 90% high efficacy lighting								
Individual	1 Opaque door clarification; allows up to 50% glass	Tampa	1	(147)	\$100.00	30	(\$482.13)	(3.40)	See report. Difficult to interpret how it will be
	2a From ducts in main conditioned space with R38 vented attic to ducts in R38 sealed attic	Tampa	3,216	(342)	\$3,216.26	30	(\$4,392.57)	(0.25)	Add cost of R38 foam subtract cost of ceiling insulation and subtract cost of ducts in main
	2b From R-4.2 ducts in main conditioned space vs. R-25 in attic (both with vented attics)	Tampa	-500	(242)	(\$500.00)	30	(\$65.09)	0.89	Buried Ducts with R13 duct insulation -take R4.2 cost and add R11 batt insulation to ducts at \$.75 per sq. ft installed
	3 1.0 cfm/watt ERV to 1.2 cfm/watt ERV	Tampa	10	86	\$10.00	15	\$199.53	11.85	cost almost 0
	4 Use 2018 IECC std. reference ventilation energy use instead of 2017 FEC's (alternative)	Tampa	25	41	\$24.60	15	\$58.65	2.30	Go from 2.2 cfm/W to 2.8 cfm/W in reference house. Assume it costs \$0.6 in improvement costs to save one kWh/yr.
	5 Additional 50 sq. ft. of pool collector to avoid need for pool cover	Tampa	300	1042	\$300.00	30	\$2,310.70	8.03	Another 9 million Btu/yr to be supplied by heat pump or renewable
	Additional 4000 Btu/h HP capacity to avoid need for pool cover	Tampa	556	371	\$556.00	15	(\$83.38)	0.92	Added
	6 Std. ref. for non-ducted heating and cooling systems assigned DSE = 1.0 vs. current 0.88	Tampa	317	529	\$317.40	30	\$992.53	3.85	Standard Reference Design energy reduction results in ductless heat pump homes to spend more money to comply through other efficiency measures. Assume \$0.60 in improvement cost to save one kWh/yr.
Note: where applicable, costs for 2,000 sq. ft. single story new construction home.									

Discussion

A review of the various changes discussed above shows that making the 2018 IECC modifications represent a range of stringency impacts, from making the Florida code more stringent to no impact to making the Florida code less stringent. A number of the changes only apply in certain cases such as projects with mechanical ventilation or with pools. Two of the most significant changes between the two codes are the unducted, fanless HVAC system reference DSE change from 0.88 to 1.0 and making R-25 ducts in vented attics equivalent to ducts in conditioned space. The unducted HVAC DSE change would make it more difficult to comply for unducted, fanless systems (effectively removing the credit of having ductless systems).

A previous analysis (Sonne and Vieira 2017) of similar code minimum one and two story sample houses showed the Prescriptive 2017 FECC to be consistently somewhat less stringent than the Prescriptive 2015 IECC. Since the 2018 IECC adds two mandatory changes that will increase stringency of all projects (HVAC register boot sealing and increased high efficacy lighting), the efficiency of the 2017 FECC is somewhat further reduced compared to the current IECC. From Sonne and Vieira 2017:

...based on their code related work, the authors anticipate that over 90% of new Florida residential construction complies via the Performance method. For example, code forms from all 31 new homes evaluated for a 2012 FSEC code compliance study (Withers et al. 2012) were Performance based. Based on straight average differences in estimated Prescriptive and Performance energy use from the sample home runs above, the 2017 FEC starts to exceed the stringency of the 2015 IECC in the state as a whole (equal weighting to Jacksonville, Tampa and Miami results) if 92% or more new residential projects comply via the Performance method. One factor discussed above that is not included in these results and will tend to increase the efficiency of homes built under the Florida code verses under the International code is the FRC's balanced return requirement.

Table 14 provides a summary of each 2018 IECC change evaluated with a quantifiable impact for homes that would be affected. As indicated throughout this report, these changes often will be applied to a small percentage of homes. The authors have provided a brief summary and recommendation in the right most column.

Table 14. Individual Code Change Summary Table.

Report Change #	ICC Change #	Change Summary	Cost and Benefit Summary/SIR	Recommendation
1	RE8-16	New Section R202 definition to clarify the meaning of “opaque door” as being “a door that is not less than 50 percent opaque in surface area.”	Difficult to assess (3.40)	New definition may be confusing as it contradicts other section of code - may be best not to include this definition
2a	RE100-16	Condition 1 of new code Section R403.3.7 which specifies two conditions under which ducts are considered as being inside conditioned space: <i>Duct systems that are completely within the continuous air barrier and building thermal envelope</i>	Uses more energy (0.25)	The sealed attic duct systems are not the same as the conditioned systems. They will use more energy. Recommend performance method continue to model the effect.
2b	RE100-16	Condition 2 of new code Section R403.3.7 which specifies two conditions under which ducts are considered as being inside conditioned space: <i>Buried ducts that meet stipulated air handler location, duct leakage, and ceiling insulation R-value requirements.</i>	Uses more energy 0.89	Uses considerably more energy than in the conditioned space. May have lower first cost. Not recommended. Potential non-energy issues.
3	RE121-16	Adds a 1.2 cfm/watt minimum whole-house mechanical ventilation fan efficacy requirement for HRVs and ERVs to Table R403.6.1.	11.85	Cost effective. Easy to comply. Recommended.
4	RE149-16	Modifies the performance compliance mechanical ventilation standard reference design’s energy use equation to use fan efficacy requirements in Table R403.6.1 instead of a fixed efficacy of 2.2 cfm/watt.	2.3	Slight improvement in energy. Little to no first cost. Recommended.

Table 14. Individual Code Change Summary Table continued.

Report Change #	ICC Change ‡	Change Summary	Cost and Benefit Summary/SIR	Recommendation
5	CE177-16 Part II	Makes three revisions to the pool and spa cover exception text: “Where more than 7075 percent of the energy for heating, computed over an operation season <u>of at least 3 calendar months</u> , is from site-recovered energy, such as from a heat pump or solar energy source <u>on-site renewable energy system</u> , covers or other vapor-retardant means shall not be required.”	8.03 solar and 0.92 for heat pump	Cost effective for solar. May be interest of holding off on decision until pool industry can weigh in.
6	RE152-16	Adds the following exception to the performance compliance thermal distribution systems standard reference design: “For non-ducted heating and cooling systems not having a fan, the standard reference design distribution system efficiency (DSE) shall be 1.”	3.85	Takes away performance credit for those going to the expense and trouble of using unducted, fanless, systems. Although hydronic systems are rare in Florida, it is not equipment neutral. Credit remains for those placing ductwork in conditioned or semi-conditioned space. Not recommended.
	RE71-16 and RE127-16	Mandatory Duct Boot Sealing and 90% High Efficacy Lights	10	Highly cost effective and recommended. Florida will fall further behind prescriptive IECC code if not implemented.

Conclusions

The authors have reviewed each change made to the 2018 IECC and evaluated whether this is likely to have any impact or is just a clarification. For the residential measures that have an impact, energy analysis is included. For the residential portion of the 2018 IECC there are only two mandatory changes that would impact every home. One of those changes is for better sealing of duct boots which is estimated to reduce air leakage between attics and conditioned space. The other change is to increase the percentage of high efficacy lighting from 75% to 90%. Each of these measures proved to be highly cost effective and both are recommended for inclusion in the 7th edition of the FECC.

One change is a definition for opaque doors that contradicts the FECC. We recommend if the definition is included it be altered to be consistent with the FECC. Depending on application of the IECC definition, Florida homes with French doors could become less efficient.

Other IECC code changes will apply to smaller numbers of homes as they tend to be technology specific. Among these is that the performance code reference house would increase the duct distribution efficiency multiplier if the proposed home had a ductless, fanless heating and cooling system. Although this will require greater efficiency in those homes and most efficiency improvements are cost effective, this change penalizes one industry – hydronic HVAC manufacturers. It also tends to misrepresent energy use in the performance code as one can obtain a lower e-ratio with a ducted central system than with a ductless system. Thus, this change is not recommended.

Some measures are small incremental improvements and should be included in the FECC. Two of these relate to efficiency of ventilation fans.

On the other hand, allowing certain attic ducts to be considered as in conditioned space actually weaken the code; if applied they should just apply to prescriptive. FSEC's position, provided in the interim report, is that duct conduction and leakage are important parameters in Florida. Duct systems may be completely within the continuous air barrier and building thermal envelope and yet not experience the same temperatures as the main conditioned space of a home. For example, duct work in sealed attics that are separated from the conditioned space by a drywall ceiling usually experience summer afternoon temperatures about 5°F (Parker et al. 2002) higher than in the conditioned space below. That temperature difference can make a difference. The 2018 IECC adds the caveat of treating buried ducts as an exception. Software that models the space can apply those effects in the performance method, but to allow the substitute of being in the conditioned space may be misguided and should not be part of the Florida code.

There is also a requirement to have 75% of the heat for a pool provided by heat pumps or on-site renewable instead of 70% to be exempted from the pool cover requirement. The cost effectiveness of this measure is more difficult to determine as one has to assume another heating

source was used for the 5% difference. With that assumption the energy saved is substantial and for the solar pool heating option, highly cost effective.

As indicated in the introduction, the commercial code energy and cost impact were not conducted due to it being contingent on PNNL producing their analysis. That analysis was delayed due to federal budget delays. We propose conducting the analysis in the next fiscal year.

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Appendix A: Commercial 2018 IECC Changes Review Summary

Commercial 2018 IECC changes with respect to 2015 IECC and 2017 Florida Energy Code (FEC) is summarized in Table A. The code change listing and sections of the ICC's Complete Revision History to the 2018 I-Codes⁶ document that contain the full code write-ups for these changes were in the interim report submitted to Florida Building Commission in March 2018. Table A has six columns and are defined as follows:

2018 IECC Section and Title: is the code section number and title for the 2018 IECC.

ICC Code Change No: proposed code change id defined in the complete revision history to the 2018 I-codes. This code number is used to identify the history of the code change including the proposal, reason for the change, any cost and energy impacts and committee action. If a code section existed in IECC-2015 and deleted without substitution in IECC-2018, then there is no code section entry in the first column of Table A, instead "None" is entered.

Change Summary b/t 2015 IECC and 2018 IECC: brief description of the code change between the 2015 IECC and 2018 IECC.

Change Summary b/t 2017 FEC and 2018 IECC: brief description of the code change between the 2017 FEC and 2018 IECC.

Anticipated Energy Impact on FEC if Adopted: Anticipated energy use impact from the code change if it is adopted the FEC. This is usually a decrease energy use, an increase energy use, or none. "None" means the code change has no or negligible impact on energy use.

Anticipated Cost Impact on FEC if Adopted: Anticipated construction cost impact from the code change if it is adopted the FEC. This is usually a decrease in construction cost, increase construction cost, or none. "None" means the code change has no or negligible anticipated impact on construction cost.

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⁶ *ICC 2018. Complete Revision History to the 2018 I-Codes*. 2017. International Code Council.
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Table A: Commercial Code Change Summary for 6th Edition (2017) Florida Energy Code vs. 2018 IECC

2018 IECC Section and Title	ICC Code Change No	Change Summary b/t 2015 IECC and 2018 IECC	Change Summary b/t 2017 FEC and 2018 IECC	Anticipated Energy Impact on FEC if Adopted*	Anticipated Cost Impact on FEC if Adopted*
[General Definitions] C202 AIR BARRIER	CE3-16 Part I	Simplifies and cleans up the definition of air barrier and adds the criterion for "continuous."	Same as change between 2015 IECC and 2018 IECC	None	None
[General Definitions] C202 BUILDING THERMAL ENVELOPE	CE4-16 Part I	The changes are editorial to add clarity and understanding to the definition of Thermal Envelope.	Same as change between 2015 IECC and 2018 IECC	None	None
[General Definitions] C202 CAVITY INSULATION	CE5-16 Part I	Added new definition for Cavity Insulation.	Same as change between 2015 IECC and 2018 IECC	None	None
[General Definitions] C202 COEFFICIENT OF PERFORMANCE (COP) – COOLING	CE6-16	This editorial change clarifies definition of cooling coefficient of performance (COP). No impact on cost.	Same as change between 2015 IECC and 2018 IECC	None	None
[General Definitions] C202 COMPUTER ROOM	CE9-16	Clarifies a computer room definition by adding the maximum limits of electronic data equipment power density and load. No impact on cost.	Same as change between 2015 IECC and 2018 IECC	None	None
[General Definitions] C202 FENESTRATION	CE11-16 Part I	Editorial clarification to existing definitions of FENESTRATION including skylights and vertical fenestration. No impact on cost.	Same as change between 2015 IECC and 2018 IECC	None	None
[General Definitions] C202 ENTRANCE DOOR	CE11-16 Part I	Editorial clarification to existing definitions of ENTRANCE DOOR to include vertical fenestration and added the word occupant. No impact on cost.	Same as change between 2015 IECC and 2018 IECC	None	None
[General Definitions] C202 NAMEPLATE HORSEPOWER.	CE15-16	Replaced “horsepower” with “output power” in NAMEPLATE HORSEPOWER definition. No effect on cost.	Same as change between 2015 IECC and 2018 IECC	None	None
[General Definitions] C202 ON-SITE RENEWABLE ENERGY	CE16-16	Added Biogas to the list of renewable energy source types in the existing definition. No effect on cost.	Same as change between 2015 IECC and 2018 IECC	None	None

Table A: Commercial Code Change Summary for 6th Edition (2017) Florida Energy Code vs. 2018 IECC (continued)

2018 IECC Section and Title	ICC Code Change No	Change Summary b/t 2015 IECC and 2018 IECC	Change Summary b/t 2017 FEC and 2018 IECC	Anticipated Energy Impact on FEC if Adopted*	Anticipated Cost Impact on FEC if Adopted*
[General Definitions] C202 SCREW LAMP HOLDERS	CE20-16	Deleted SCREW LAMP HOLDERS definition without substitution. No effect on cost.	Same as change between 2015 IECC and 2018 IECC	None	None
C303.1.1 Building thermal envelope insulation	CE26-16 Part I	Added labeling requirement for roof insulation installed entirely above the deck as an exception. No effect on cost.	Same as change between 2015 IECC and 2018 IECC	None	None
C303.1.3 Fenestration product rating	CE29-16 Part I	Modified code section C303.1.3. Removed the exception for garage doors rating and added U-factor rating requirement for garage doors and rolling doors. No effect on cost.	Same as change between 2015 IECC and 2018 IECC	None	None
TABLE C303.1.3(2) DEFAULT OPAQUE DOOR U-FACTORS	CE30-16 Part I	Modified Table C303.1.3(2). Added rolling insulated metal door type and default Opaque Door U-factor value. Also edited titles of tables C303.1.3(1) and C303.1.3(2) for clarity. No effect on cost.	Same as change between 2015 IECC and 2018 IECC	None	None
None	CE34-16	Deleted code section C303.3 Maintenance Information without substitution.	Same as change between 2015 IECC and 2018 IECC	None	None
C408 MAINTENANCE INFORMATION AND SYSTEM COMMISSIONING		Modified section C408 title. No effect on cost	Same as change between 2015 IECC and 2018 IECC	None	None
C408.1 General		Edited code section C408.1. Added Maintenance Information requirement. Deleted cross-referenced code sections. No effect on cost.	Same as change between 2015 IECC and 2018 IECC	None	None
C408.1.1 Building operations and maintenance information		Added new code section C408.1.1. Building operations and maintenance information document shall be provided to the owner. No effect on cost.	Same as change between 2015 IECC and 2018 IECC	None	None
C401.2 Application	CE36-16	Modified code section C401.2. Added building compliance requirements to include Section C408.	Same as change between 2015 IECC and 2018 IECC	None	None

Table A: Commercial Code Change Summary for 6th Edition (2017) Florida Energy Code vs. 2018 IECC (continued)

2018 IECC Section and Title	ICC Code Change No	Change Summary b/t 2015 IECC and 2018 IECC	Change Summary b/t 2017 FEC and 2018 IECC	Anticipated Energy Impact on FEC if Adopted*	Anticipated Cost Impact on FEC if Adopted*
None	CE36-16	Deleted code section C403.2.11 without substitution. No effect on cost.	Same as change between 2015 IECC and 2018 IECC	None	None
None		Deleted code section C404.11 without substitution. No effect on cost.	Same as change between 2015 IECC and 2018 IECC	None	None
C408.1 General		Modified code section C408.1. Added functional testing requirements and deleted some cross-referenced section numbers and the text “electrical power and lighting systems”. No effect on cost.	Same as change between 2015 IECC and 2018 IECC	None	None
None. Deleted. See CE268-16		Modified code section C408.2.5.2. Edited operating and maintenance manual requirements to include a narrative of how a system intended to operate and recommended setpoints. Also deleted items 6 through 7. No effect on cost.	Same as change between 2015 IECC and 2018 IECC	None	None
C408.3 Functional testing for lighting controls		Modified code section C408.3. Modified automatic lighting control requirements. Replaced text “system” with “controls” in the title. No effect on cost.	Same as change between 2015 IECC and 2018 IECC	None	None
C408.3.1 Functional testing		Modified code section C408.3.1. Revised functional testing requirements to include Section C408.3.1.3. No effect on cost.	Same as change between 2015 IECC and 2018 IECC	None	None
C408.3.2 Documentation requirements		Modified code section C408.3.2. Revised requirements for construction documents submittal to the owner and owner authorized agents within 90 days of the date of receipt of certificate of occupancy. No effect on cost.	Same as change between 2015 IECC and 2018 IECC	None	None
C408.3.2.1 Drawings		Added a new section C408.3.2.1. Construction documents shall include the location and catalogue number of each piece of equipment. No effect on cost.	Same as change between 2015 IECC and 2018 IECC	None	None
C408.3.2.2 Manuals		Added a new section C408.3.2.2. Operational and maintenance manual shall be provided and lists what needs to be included in the manual. No effect on cost.	Same as change between 2015 IECC and 2018 IECC	None	None

Table A: Commercial Code Change Summary for 6th Edition (2017) Florida Energy Code vs. 2018 IECC (continued)

2018 IECC Section and Title	ICC Code Change No	Change Summary b/t 2015 IECC and 2018 IECC	Change Summary b/t 2017 FEC and 2018 IECC	Anticipated Energy Impact on FEC if Adopted*	Anticipated Cost Impact on FEC if Adopted*
C408.3.2.3 Report	CE36-16	Added a new section C408.3.2.3. The test report shall include functional performance results and deficiencies found during testing including corrective measures proposed. No effect on cost.	Same as change between 2015 IECC and 2018 IECC	None	None
C402.1.3 Insulation component R-value-based method	CE55-16	Modified code section C402.1.3. This is just a reorganization of requirements that are already in the code. No cost increase.	Same as change between 2015 IECC and 2018 IECC	None	None
C402.1.4 Assembly <i>U</i> -factor, <i>C</i> -factor or <i>F</i> -factor-based method		Modified code section C402.1.4. Removed some code text related to below-grade walls to create a new section. No cost increase.	Same as change between 2015 IECC and 2018 IECC	None	None
C402.2.5 Below-grade walls		Added new code section C402.2.5. This section is created by moving code from Section C402.1.4. No cost increase.	Same as change between 2015 IECC and 2018 IECC (Section number changed from C402.4.4 to C402.4.5)	None	None
C402.4.5 Doors		Modified code section C402.4.4. Clarified doors code requirement. Opaque swinging doors shall comply with Table C402.1.4 and non-swinging doors shall comply with Table C402.1.3. No cost increase.	Same as change between 2015 IECC and 2018 IECC (Section number changed from C402.4.4 to C402.4.5)	None	None
Table C402.1.3, Table C402.1.4	CE60-16 Part I	Modified Tables C402.1.3 and C402.1.4. Establishes appropriate U-values for opaque garage doors and title changes for consistency with residential application. No effect on cost.	Same as change between 2015 IECC and 2018 IECC	None	None
Table C402.1.3, Table C402.1.4	CE61-16	Modified Tables C402.1.3 and C402.1.4. Increased the minimum insulation R-values for all climates for heated slab-on-grade floors, increased maximum F-factors for climate zones 7- 8 for unheated slab-on-grade floors and increased maximum F-factors for climate zones 1- 8 for heated slab-on-grade floors. Increases cost.	Same as change between 2015 IECC and 2018 IECC.	Decreases Energy Use	Increases cost
C402.2.4 Slabs-on-grade perimeter insulation		Edited code section C402.2.5. Provided clarification on the application of perimeter slab insulation for heated slab-on-grade floors. No effect on cost.	Same as change between 2015 IECC and 2018 IECC	None	None

Table A: Commercial Code Change Summary for 6th Edition (2017) Florida Energy Code vs. 2018 IECC (continued)

2018 IECC Section and Title	ICC Code Change No	Change Summary b/t 2015 IECC and 2018 IECC	Change Summary b/t 2017 FEC and 2018 IECC	Anticipated Energy Impact on FEC if Adopted*	Anticipated Cost Impact on FEC if Adopted*
C402.1.3 Insulation component R-value-based method	CE65-16 Part I	Edited code section C402.1.3. Replaced the text ‘meet’ with “comply” to emphasize the code intent. No effect on cost.	Same as change between 2015 IECC and 2018 IECC	None	None
C402.1.4 Insulation component R-value-based method	CE68-16	Modified code section C402.1.4. Edited footnotes “a” and “b” to Table C402.1.4 for clarification. No effect on cost.	Same as change between 2015 IECC and 2018 IECC	None	None
Table C402.1.4 Opaque Thermal Envelope Maximum Requirements, U-Factor Method	CE69-16	Modified Table C402.1.4. Corrects above-grade walls and mass floors U-factor requirements in Table C402.1.4 to make them consistent with the R-value requirements in Table C402.1.3 for climate zones 6 through 8. No effect on cost.	Same as change between 2015 IECC and 2018 IECC	None	None
C402.1.5 Component performance alternative	CE72-16	Edited code section C402.1.5. Edited cross-reference of C-, F-, and U-factor tables and added fenestrations SHGC compliance requirement for component performance alternative method. No effect on cost.	Same as change between 2015 IECC and 2018 IECC	None	None
C502.2.1 Vertical fenestration		Edited code section C502.2.1. Corrected cross-referenced code section of new and additions vertical fenestration code requirements. Replaced text “vertical glazing” with “vertical fenestration” for consistency. No effect on cost.	Same as change between 2015 IECC and 2018 IECC	None	None
C502.2.2 Skylight area		Edited code section C502.2.2. Corrected cross-referenced code section of new and addition total skylights area code requirement. No effect on cost	Same as change between 2015 IECC and 2018 IECC	None	None
C503.3.1 Roof replacement		Edited code section C503.3.1. Corrected cross-referenced code section of roof replacement requirement. No effect on cost	Same as change between 2015 IECC and 2018 IECC	None	None
C503.3.2 Vertical fenestration		Edited code section C503.3.2. Corrected cross-referenced code section of additions and alterations of vertical fenestration code requirement to comply. Also replaces vertical glazing with vertical fenestration for consistency and clarification. No effect on cost	Same as change between 2015 IECC and 2018 IECC	None	None

Table A: Commercial Code Change Summary for 6th Edition (2017) Florida Energy Code vs. 2018 IECC (continued)

2018 IECC Section and Title	ICC Code Change No	Change Summary b/t 2015 IECC and 2018 IECC	Change Summary b/t 2017 FEC and 2018 IECC	Anticipated Energy Impact on FEC if Adopted*	Anticipated Cost Impact on FEC if Adopted*
C503.3.3 Skylight area	CE72-16	Edited code section C503.3.3. Corrected cross-referenced code section of new and alteration skylights area requirement. No effect on cost	Same as change between 2015 IECC and 2018 IECC	None	None
C303.2.2 Multiple layers of continuous insulation board	CE74-16	Moved code section C402.2.1. Changed section number to C303.2.2. No text change. No effect on cost.	Same as change between 2015 IECC and 2018 IECC	None	None
C402.2.1 Roof assembly	CE78-16	Modified code section C402.2.2. Continuous insulation board shall be installed in not less than 2 layers and the edge joints between each layer of insulation shall be Staggered. Negligible cost increase.	Same as change between 2015 IECC and 2018 IECC	None	None
C402.2.1 Roof assembly	CE81-16	Edited code section C402.2.2. Rearranged text. No effect on cost.	Same as change between 2015 IECC and 2018 IECC	None	None
C402.2.1 Roof assembly	CE82-16	Modified code section C402.2.2. Moved the skylights curb insulation R-value and the related exception requirements to new subsection C402.2.1.1. No effect on cost.	Same as change between 2015 IECC and 2018 IECC	None	None
C402.2.1.1 Skylights curbs		Added new subsection C402.2.1.1 by moving existing code on Skylight curbs insulation level requirements from roof assembly section C402.2.2 for clarity. No effect on cost.	Same as change between 2015 IECC and 2018 IECC	None	None
C402.2.2 Above-grade walls	CE83-16	Edited code section C402.2.3. Changed the title to "Above-grade walls". Added a clarification on the use of U-factor for integral insulation installed in concrete masonry units. No effect on cost.	Same as change between 2015 IECC and 2018 IECC	None	None
C402.2.2 Above-grade walls	CE84-16 Part I	Modified code section C402.2.3. Clarifies "Mass walls" compliance requirements. No effect on cost.	Same as change between 2015 IECC and 2018 IECC	None	None
C402.2.3 Floors		Modified code section C402.2.4. Clarifies "Mass floors" weight requirements for compliance. No effect on cost.	Same as change between 2015 IECC and 2018 IECC	None	None

Table A: Commercial Code Change Summary for 6th Edition (2017) Florida Energy Code vs. 2018 IECC (continued)

2018 IECC Section and Title	ICC Code Change No	Change Summary b/t 2015 IECC and 2018 IECC	Change Summary b/t 2017 FEC and 2018 IECC	Anticipated Energy Impact on FEC if Adopted*	Anticipated Cost Impact on FEC if Adopted*
C402.2.7 Airspaces	CE87-16 Part I	Added new code section C402.2.7. Added a new section about airspaces in thermal envelope application and restrictions on the R-value of airspaces. No effect on cost.	Same as change between 2015 IECC and 2018 IECC	None	None
TABLE C402.4 BUILDING ENVELOPE FENESTRATION MAXIMUM U-FACTOR AND SHGC REQUIREMENTS	CE94-16	Modified TABLE C402.4. Reduced fenestration SHGC values by 5.0 – 10.0% for IECC climate zones 4 and 5. This change impacted climate zones 4 and 5. No significant effect on cost.	Same as change between 2015 IECC and 2018 IECC. No effect on FEC. No effect on cost.	None	None
C402.4.1.2 Increased skylight area with daylight responsive controls	CE97-16	Modified code section C402.4.1.2. Skylights area percentage allowed with daylight response control is used increased from 5% to 6%. No effect on cost.	Same as change between 2015 IECC and 2018 IECC	Decreases Energy Use	None
C402.4.1.2 Increased skylight area with daylight responsive controls	CE98-16	Edited code section C402.4.1.2. Replaced text “zones under skylights” with “Toplit zones”. No effect on cost.	Same as change between 2015 IECC and 2018 IECC	None	None
C402.4.2 Minimum skylight fenestration area		Edited code section C402.4.2. Replaced text “zones under skylights” with “Toplit daylight zones”. Also edited equation of Skylight Effective Aperture, Equation 4-4. No effect on cost.	Same as change between 2015 IECC and 2018 IECC	None	None
C402.4.2.1 Lighting controls in toplit daylight zones		Edited code section C402.4.2.1. Editorial change to section title and the text. Replaced text “zones under skylights” with “Toplit daylight zones”. Also edited Figures C405.2.3.2 and C405.2.3.3 (1) captions. No effect on cost.	Same as change between 2015 IECC and 2018 IECC	None	None
C402.4.4 Daylight zones	CE102-16	Added new section C402.4.4 Daylight zones. Referenced other code section. No effect on cost.	Same as change between 2015 IECC and 2018 IECC	None	None

Table A: Commercial Code Change Summary for 6th Edition (2017) Florida Energy Code vs. 2018 IECC (continued)

2018 IECC Section and Title	ICC Code Change No	Change Summary b/t 2015 IECC and 2018 IECC	Change Summary b/t 2017 FEC and 2018 IECC	Anticipated Energy Impact on FEC if Adopted*	Anticipated Cost Impact on FEC if Adopted*
C405.2.3.2 Sidelit zone	CE102-16	Edited code section C405.2.3.2. Replaced text “Sidelight daylight zone” with “Sidelit zone”. No effect on cost.	Same as change between 2015 IECC and 2018 IECC	None	None
C405.2.3.3 Toplit zone		Edited code section C405.2.3.3. Replaced text “Toplight daylight zone” with “Toplit zone”. No effect on cost.	Same as change between 2015 IECC and 2018 IECC	None	None
C405.2.3 Daylight-responsive controls		Edited code section C405.2.3. Replaced text “Toplight daylight zone” with “Toplit zone” and “Sidelight daylight zone” with “Sidelit zone”. No effect on cost.	Same as change between 2015 IECC and 2018 IECC	None	None
C405.2.3.1 Daylight-responsive control function		Edited code section C405.2.3.1. Replaced text “Toplight daylight zone” with “Toplit zone” and “Sidelight daylight zone” with “Sidelit zone”. No effect on cost.	Same as change between 2015 IECC and 2018 IECC	None	None
C402.5.1.1 Air barrier construction	CE108-16	Modified code section C402.5.1.1. Modified the compliance requirement to include “Sealing shall allow for expansion, contraction, and mechanical vibration”. No effect on cost.	Same as change between 2015 IECC and 2018 IECC	None	None
C402.5.1.1 Air barrier construction	CE109-16	Edited code section C402.5.1.1. Editorial change to the code text for clarity. No effect on cost.	Same as change between 2015 IECC and 2018 IECC	None	None
TABLE C402.5.2 MAXIMUM AIR LEAKAGE RATE FOR FENESTRATION ASSEMBLIES	CE113-16	Modified Table C402.5.2. Added “Power-operated sliding doors” and “Power-operated folding doors” entry to the table. No effect on cost.	Same as change between 2015 IECC and 2018 IECC	None	None
C402.5.3 Rooms containing fuel-burning appliances	CE114-16 Part I	Edited code section C402.5.3. Editorial change was rejected. No effect on cost.	Same as change between 2015 IECC and 2018 IECC	None	None

Table A: Commercial Code Change Summary for 6th Edition (2017) Florida Energy Code vs. 2018 IECC (continued)

2018 IECC Section and Title	ICC Code Change No	Change Summary b/t 2015 IECC and 2018 IECC	Change Summary b/t 2017 FEC and 2018 IECC	Anticipated Energy Impact on FEC if Adopted*	Anticipated Cost Impact on FEC if Adopted*
C402.5.6 Loading dock weatherseals	CE116-16	Modified code section C402.5.6. Door openings shall be equipped with weatherseals to restrict infiltration and provide direct contact along the top and sides of vehicles when parked in the doorway. Expected to increase first cost of construction.	Same as change between 2015 IECC and 2018 IECC	Decreases Energy Use	Increases cost
C403.1 General	CE119-16	Edited code section C403.1. Editorial changes. No effect on cost.	Same as change between 2015 IECC and 2018 IECC	None	None
C403.1.1 Calculation of heating and cooling loads		Modified code section C403.2.1. Moved the section to create a new section C403.1.1. No effect on cost.	Same as change between 2015 IECC and 2018 IECC. Florida code needs to preserve the Design loads reporting form requirements. No effect on cost.	None	None
C403.2 System design (Mandatory)		Modified code section C403.2. Modified section title and updated cross-referenced code sections. No effect on cost.	Same as change between 2015 IECC and 2018 IECC	None	None
C403.2.1 Zone isolation required (Mandatory)		Modified code section C403.2.4.4. Added text “required” to the title, updated cross-referenced code sections, and labelled it Mandatory. No effect on cost.	Same as change between 2015 IECC and 2018 IECC	None	None
C403.4 Heating and cooling equipment efficiencies (Mandatory)		Added new code section C403.4. No effect on cost.	Same as change between 2015 IECC and 2018 IECC	None	None
C403.3.1 Equipment sizing		Edited code section C403.2.2. Edited code section to updated cross-referenced code section. No effect on cost.	Same as change between 2015 IECC and 2018 IECC	None	None
C403.3.2 HVAC equipment performance requirements (Mandatory)		Edited code section C403.2.3. Edited code section C403.2.3 and updated cross-referenced Tables C403.3.2(1) through C403.3.2(10) and labelled it Mandatory. No effect on cost.	Same as change between 2015 IECC and 2018 IECC	None	None

Table A: Commercial Code Change Summary for 6th Edition (2017) Florida Energy Code vs. 2018 IECC (continued)

2018 IECC Section and Title	ICC Code Change No	Change Summary b/t 2015 IECC and 2018 IECC	Change Summary b/t 2017 FEC and 2018 IECC	Anticipated Energy Impact on FEC if Adopted*	Anticipated Cost Impact on FEC if Adopted*
C403.3.2.1 Water-cooled centrifugal chilling packages (Mandatory)	CE119-16	Edited code section C403.2.3.1. Edited existing code section C403.2.3.1, updated cross-referenced code sections and labelled it Mandatory. No effect on cost.	Same as change between 2015 IECC and 2018 IECC	None	None
C403.3.2.2. Positive displacement (air- and water-cooled) chilling packages (Mandatory)		Edited code section C403.2.3.2. Edited existing code section C403.2.3.2, updated cross-referenced code sections and labelled it Mandatory. No effect on cost.	Same as change between 2015 IECC and 2018 IECC	None	None
C403.3.3 Hot gas bypass limitation		Edited code section C403.4.6. Edited existing code section C403.4.6 and updated cross-referenced code sections. No effect on cost.	Same as change between 2015 IECC and 2018 IECC	None	None
C403.3.4 Boiler turndown		Edited code section C403.4.2.5. Edited code section C403.4.2.5 and updated cross-referenced code sections. No effect on cost.	Same as change between 2015 IECC and 2018 IECC	None	None
None		Deleted code section C403.2.4 HVAC system controls without substitution. No effect on cost.	Same as change between 2015 IECC and 2018 IECC	None	None
C403.4 Heating and cooling system controls (Mandatory)		Added new code section C403.4. Added controls requirement for each cooling and heating systems per code section C403.4.1 through C403.4.5. No effect on cost.	Same as change between 2015 IECC and 2018 IECC	None	None
C403.4.1 Thermostatic controls (Mandatory)		Modified code section C403.2.4.1. Replaced code section C403.2.4.1 and labeled it mandatory. No effect on cost.	Same as change between 2015 IECC and 2018 IECC	None	None
C403.4.1.1 Heat pump supplementary heat (Mandatory)		Modified code section C403.2.4.1.1. Replaced existing code section C403.2.4.1.1 and labeled it mandatory. No effect on cost.	Same as change between 2015 IECC and 2018 IECC	None	None
C403.4.1.2 Deadband (Mandatory)		Modified code section C403.2.4.1.2. Replaced existing code section C403.2.4.1.2 and labeled it mandatory. No effect on cost.	Same as change between 2015 IECC and 2018 IECC	None	None

Table A: Commercial Code Change Summary for 6th Edition (2017) Florida Energy Code vs. 2018 IECC (continued)

2018 IECC Section and Title	ICC Code Change No	Change Summary b/t 2015 IECC and 2018 IECC	Change Summary b/t 2017 FEC and 2018 IECC	Anticipated Energy Impact on FEC if Adopted*	Anticipated Cost Impact on FEC if Adopted*
C403.4.1.3 Set point overlap restriction (Mandatory)	CE119-16	Modified code section C403.2.4.1.3. Replaced code section number C403.2.4.1.3, labeled it mandatory and updated cross-referenced code sections. No effect on cost.	Same as change between 2015 IECC and 2018 IECC	None	None
C403.4.1.5 Hot water boiler outdoor temperature setback control (Mandatory)		Modified code section C403.2.5. Replaced code section number C403.2.5 and labeled it mandatory. No effect on cost.	Same as change between 2015 IECC and 2018 IECC	None	None
C403.4.2 Off-hour controls (Mandatory)		Modified code section C403.2.4.2. Replaced code section number C403.2.4.2 and labeled it mandatory. No effect on cost.	Same as change between 2015 IECC and 2018 IECC	None	None
C403.4.2.1 Thermostatic setback capabilities (Mandatory)		Modified code section C403.4.2.1. Replaced code section number C403.2.4.2.1, and labeled it mandatory. No effect on cost.	Same as change between 2015 IECC and 2018 IECC	None	None
C403.4.2.2 Automatic setback and shutdown capabilities (Mandatory)		Modified code section C403.4.2.2. Replaced code section number C403.2.4.2.2, and labeled it mandatory. No effect on cost.	Same as change between 2015 IECC and 2018 IECC	None	None
C403.4.2.3 Automatic start (Mandatory)		Modified code section C403.4.2.3. Replaced code section number C403.2.4.2.3, deleted “capabilities” from the title and labeled it Mandatory. No effect on cost.	Same as change between 2015 IECC and 2018 IECC	None	None
C403.4.3 Hydronic systems controls		Modified code section C403.4.2. Replaced existing code section number C403.4.2 and updated cross-referenced code sections. No effect on cost.	Same as change between 2015 IECC and 2018 IECC	None	None
C403.4.3.1 Three-pipe system		Changed code section number C403.4.2.1. No text change. No effect on cost.	Same as change between 2015 IECC and 2018 IECC	None	None
C403.4.3.2 Two-pipe changeover system		Changed code section number C403.4.2.2. No text change. No effect on cost.	Same as change between 2015 IECC and 2018 IECC	None	None

Table A: Commercial Code Change Summary for 6th Edition (2017) Florida Energy Code vs. 2018 IECC (continued)

2018 IECC Section and Title	ICC Code Change No	Change Summary b/t 2015 IECC and 2018 IECC	Change Summary b/t 2017 FEC and 2018 IECC	Anticipated Energy Impact on FEC if Adopted*	Anticipated Cost Impact on FEC if Adopted*
C403.4.3.3 Hydronic (water loop) heat pump systems	CE119-16	Changed code section number C403.4.2.3 and updated cross-referenced code sections. No effect on cost.	Same as change between 2015 IECC and 2018 IECC	None	None
C403.4.3.3.1 Temperature dead band		Changed code section number C403.4.2.3.1. No effect on cost.	Same as change between 2015 IECC and 2018 IECC	None	None
C403.4.3.3.2 Heat rejection		Changed code section number C403.4.2.3.2 and updated cross-referenced code sections. Also combined section number C403.4.2.3.2.1 and section number C403.4.2.3.2.2 and moved it to C403.4.2.3.2. No effect on cost.	Same as change between 2015 IECC and 2018 IECC	None	None
None. See CE160-16		Moved code section number C403.4.2.3.2.1. No effect on cost.	Same as change between 2015 IECC and 2018 IECC	None	None
None. See CE160-16		Moved code section number C403.4.2.3.2.2. No effect on cost.	Same as change between 2015 IECC and 2018 IECC	None	None
C403.4.3.3.3 Two-position valve		Changed code section number C403.4.2.3.3. No effect on cost.	Same as change between 2015 IECC and 2018 IECC	None	None
C403.4.4 Part-load controls		Changed code section number C403.4.2.4. No effect on cost.	Same as change between 2015 IECC and 2018 IECC	None	None
C403.4.5 Pump isolation		Changed code section number C403.4.2.6. No effect on cost.	Same as change between 2015 IECC and 2018 IECC	None	None
C403.5 Economizers (Prescriptive)		Changed code section number C403.3 and updated cross-referenced code sections. No effect on cost.	Same as change between 2015 IECC and 2018 IECC. FEC has economizer exception for HVAC unit efficiency is higher by at least 17%.	None	None
Tables C403.5(1), C403.5(2) and C403.5.1		Changed Table numbers C403.3(1), C403.3(2). And C403.3.1. No effect on cost.	Same as change between 2015 IECC and 2018 IECC. Economizer exception for high efficiency equipment applies.	None	None

Table A: Commercial Code Change Summary for 6th Edition (2017) Florida Energy Code vs. 2018 IECC (continued)

2018 IECC Section and Title	ICC Code Change No	Change Summary b/t 2015 IECC and 2018 IECC	Change Summary b/t 2017 FEC and 2018 IECC	Anticipated Energy Impact on FEC if Adopted*	Anticipated Cost Impact on FEC if Adopted*
C403.5.2 Integrated economizer control	CE119-16	Changed code section number C403.3.1 and updated cross-referenced code sections. No effect on cost.	Same as change between 2015 IECC and 2018 IECC	None	None
C403.5.2 Economizer heating system impact.		Changed code section number C403.3.2 and updated cross-referenced code sections. No effect on cost.	Same as change between 2015 IECC and 2018 IECC	None	None
C403.5.3 Air Economizer		Changed code section number C403.3.3 and updated cross-referenced code sections. No effect on cost.	Same as change between 2015 IECC and 2018 IECC	None	None
C403.5.3.1 Design capacity		Changed code section number C403.3.3.1. No effect on cost.	Same as change between 2015 IECC and 2018 IECC	None	None
C403.5.3.2 Control signal		Changed code section number C403.3.3.2. No effect on cost.	Same as change between 2015 IECC and 2018 IECC	None	None
C403.5.3.3 High-limit shutoff		Changed code section number C403.3.3.3 and updated cross-referenced code sections. No effect on cost.	Same as change between 2015 IECC and 2018 IECC	None	None
C403.5.3.4 Relief of excess outdoor air		Changed code section number C403.3.3.4 and no change to text. No effect on cost.	Same as change between 2015 IECC and 2018 IECC	None	None
C403.5.3.5 Economizer dampers		Changed code section number C403.3.3.5 and updated cross-referenced code sections. No effect on cost.	Same as change between 2015 IECC and 2018 IECC	None	None
C403.5.4 Water-side economizers		Changed code section number C403.3.4 and updated cross-referenced code sections. No effect on cost.	Same as change between 2015 IECC and 2018 IECC	None	None
C403.5.4.1 Design capacity		Changed code section number C403.3.4.1 and no change to text. No effect on cost.	Same as change between 2015 IECC and 2018 IECC	None	None
C403.5.4.2 Maximum pressure drop		Changed code section number C403.3.4.2 and no change to text. No effect on cost.	Same as change between 2015 IECC and 2018 IECC	None	None

Table A: Commercial Code Change Summary for 6th Edition (2017) Florida Energy Code vs. 2018 IECC (continued)

2018 IECC Section and Title	ICC Code Change No	Change Summary b/t 2015 IECC and 2018 IECC	Change Summary b/t 2017 FEC and 2018 IECC	Anticipated Energy Impact on FEC if Adopted*	Anticipated Cost Impact on FEC if Adopted*
C403.5.5 Economizer fault detection and diagnostics (FDD) (Mandatory)	CE119-16	Changed code section number C403.2.4.7 labeled it mandatory section and updated cross-referenced code sections. No effect on cost.	Same as change between 2015 IECC and 2018 IECC	None	None
None		Deleted code section C403.4 without substitution. No effect on cost.	Same as change between 2015 IECC and 2018 IECC	None	None
C403.6 Requirements for mechanical systems serving multiple zones		Changed code section number C403.4.4, modified the section title, and updated cross-referenced code section numbers. No effect on cost.	Same as change between 2015 IECC and 2018 IECC	None	None
C403.6.2 Single-duct VAV systems, terminal devices		Changed code section number C403.4.4.1. No text changed. No effect on cost.	Same as change between 2015 IECC and 2018 IECC	None	None
C403.6.3 Dual-duct and mixing VAV systems, terminal devices		Changed code section number C403.4.4.2. No text changed. No effect on cost.	Same as change between 2015 IECC and 2018 IECC	None	None
C403.6.4 Single-fan dual-duct and mixing VAV systems, economizers		Changed code section number C403.4.4.3. No text changed. No effect on cost.	Same as change between 2015 IECC and 2018 IECC	None	None
C403.6.5 Supply-air temperature reset controls		Changed code section number C403.4.4.5. No text changed. No effect on cost.	Same as change between 2015 IECC and 2018 IECC	None	None
C403.6.6 Multiple-zone VAV system ventilation optimization control		Changed code section number C403.4.4.6 and updated cross-referenced code sections. No effect on cost.	Same as change between 2015 IECC and 2018 IECC	None	None
C403.6.8 Set points for direct digital control		Changed code section number C403.4.1.3 and updated cross-referenced code sections. No effect on cost.	Same as change between 2015 IECC and 2018 IECC	None	None
C403.6.9 Static pressure sensor location		Changed code section number C403.4.1.2. No change to text. No effect on cost.	Same as change between 2015 IECC and 2018 IECC	None	None
C403.7 Ventilation and exhaust systems		Added new code section C403.7. No effect on cost.	Same as change between 2015 IECC and 2018 IECC	None	None

Table A: Commercial Code Change Summary for 6th Edition (2017) Florida Energy Code vs. 2018 IECC (continued)

2018 IECC Section and Title	ICC Code Change No	Change Summary b/t 2015 IECC and 2018 IECC	Change Summary b/t 2017 FEC and 2018 IECC	Anticipated Energy Impact on FEC if Adopted*	Anticipated Cost Impact on FEC if Adopted*
C403.7.1 Demand controlled ventilation (Mandatory)	CE119-16	Changed code section number C403.2.6.1 labeled it mandatory section and updated cross-referenced code section. No effect on cost.	Same as change between 2015 IECC and 2018 IECC	None	None
C403.7.2 Enclosed parking garage ventilation controls (Mandatory)		Changed code section number C403.2.6.2, and labeled it mandatory. No effect on cost.	Same as change between 2015 IECC and 2018 IECC	None	None
C403.7.3 Energy recovery ventilation systems (Mandatory)		Changed code section number C403.2.7, labeled it mandatory section and updated cross-referenced code section. No effect on cost.	Same as change between 2015 IECC and 2018 IECC	None	None
C403.7.4 Kitchen exhaust systems (Mandatory)		Changed code section number C403.2.8, and labeled it mandatory. No effect on cost.	Same as change between 2015 IECC and 2018 IECC	None	None
C403.7.5 Shutoff dampers (Mandatory)		Changed code section number C403.2.4.3, and labeled it mandatory. No effect on cost.	Same as change between 2015 IECC and 2018 IECC	None	None
C403.8 Fans and fan controls (Mandatory)		Changed code section number C403.2.12, changed the title, moved some of the text to a new section C403.8.1, updated cross-referenced code section and labeled it mandatory. No effect on cost.	Same as change between 2015 IECC and 2018 IECC	None	None
C403.8.1 Allowable fan horsepower (Mandatory)		Added a new code section C403.8.1. Total fan system motor nameplate horsepower (hp) exceeding 5 hp (3.7 kW) shall comply with the provisions of Sections C403.8.1.1 through C403.8.1.3. No effect on cost.	Same as change between 2015 IECC and 2018 IECC	None	None
C403.8.1 Allowable fan horsepower (Mandatory)		Changed code section number C403.2.12.1, moved it to the new section C403.8.1. No effect on cost.	Same as change between 2015 IECC and 2018 IECC	None	None
C403.8.2 Motor nameplate horsepower (Mandatory)		Changed code section number C403.2.12.2, labeled it mandatory and updated cross-referenced code section. No effect on cost.	Same as change between 2015 IECC and 2018 IECC	None	None

Table A: Commercial Code Change Summary for 6th Edition (2017) Florida Energy Code vs. 2018 IECC (continued)

2018 IECC Section and Title	ICC Code Change No	Change Summary b/t 2015 IECC and 2018 IECC	Change Summary b/t 2017 FEC and 2018 IECC	Anticipated Energy Impact on FEC if Adopted*	Anticipated Cost Impact on FEC if Adopted*
C403.8.3 Fan efficiency (Mandatory)	CE119-16	Changed code section number C403.2.12.3, labeled it mandatory and updated cross-referenced code section. No effect on cost.	Same as change between 2015 IECC and 2018 IECC	None	None
C403.8.4 Fractional hp fan motors		Changed code section number C403.4.4.4, updated cross-referenced code section labeled it mandatory and. No effect on cost.	Same as change between 2015 IECC and 2018 IECC	None	None
C403.8.5 Fan control		Changed code section number C403.4.1 and updated cross-referenced code section. No effect on cost.	Same as change between 2015 IECC and 2018 IECC	None	None
C403.8.5.1 Fan airflow control		Changed code section number C403.4.1.1 and updated cross-referenced code section. No effect on cost.	Same as change between 2015 IECC and 2018 IECC	None	None
C403.9 Heat rejection equipment		Changed code section number C403.4.3 and updated cross-referenced code section. No effect on cost.	Same as change between 2015 IECC and 2018 IECC	None	None
C403.9.1 General		Changed code section number C403.4.3.1 and updated cross-referenced code section. No effect on cost.	Same as change between 2015 IECC and 2018 IECC	None	None
C403.9.2 Fan speed control		Changed code section number C403.4.3.2 and updated cross-referenced code section. No effect on cost.	Same as change between 2015 IECC and 2018 IECC	None	None
C403.9.2.1 Fan motors not less than 7.5 hp		Changed code section number C403.4.3.2.1. No effect on cost.	Same as change between 2015 IECC and 2018 IECC	None	None
C403.9.2.2 Multiple-cell heat rejection equipment		Changed code section number C403.4.3.2.2. No effect on cost.	Same as change between 2015 IECC and 2018 IECC	None	None
C403.9.3 Limitation on centrifugal fan open-circuit cooling towers		Changed code section number C403.4.3.3 and updated cross-referenced code section. No effect on cost.	Same as change between 2015 IECC and 2018 IECC	None	None
C403.9.4 Tower flow turndown		Changed code section number C403.4.3.4. No change to text. No effect on cost.	Same as change between 2015 IECC and 2018 IECC	None	None

Table A: Commercial Code Change Summary for 6th Edition (2017) Florida Energy Code vs. 2018 IECC (continued)

2018 IECC Section and Title	ICC Code Change No	Change Summary b/t 2015 IECC and 2018 IECC	Change Summary b/t 2017 FEC and 2018 IECC	Anticipated Energy Impact on FEC if Adopted*	Anticipated Cost Impact on FEC if Adopted*
C403.9.5 Heat recovery for service water heating	CE119-16	Changed code section number C403.4.5. No change to text. No effect on cost	Same as change between 2015 IECC and 2018 IECC	None	None
C403.10 Refrigeration equipment performance (Mandatory)		Changed code section number C403.2.14, labeled it mandatory and updated cross-referenced code section. No effect on cost.	Same as change between 2015 IECC and 2018 IECC	None	None
C403.10.1 Walk-in coolers, walk-in freezers, refrigerated warehouse coolers and refrigerated warehouse freezers (Mandatory)		Changed code section number C403.2.15, labeled it mandatory. No effect on cost.	Same as change between 2015 IECC and 2018 IECC	None	None
C403.10.2 Walk-in coolers and walk-in freezers (Mandatory)		Changed code section number C403.2.16 and labeled it mandatory. No effect on cost	Same as change between 2015 IECC and 2018 IECC	None	None
C403.10.3 Refrigerated display cases (Mandatory)		Changed code section number C403.2.17 and labeled it mandatory. No effect on cost	Same as change between 2015 IECC and 2018 IECC	None	None
C403.10.4 Refrigeration systems		Changed code section number C403.5 and updated cross-referenced code section. No effect on cost.	Same as change between 2015 IECC and 2018 IECC	None	None
C403.10.4.1 Condensers serving refrigeration systems		Changed code section number C403.5.1. No effect on cost.	Same as change between 2015 IECC and 2018 IECC	None	None
C403.10.4.2 Compressor systems		Changed code section number C403.5.2. No effect on cost.	Same as change between 2015 IECC and 2018 IECC	None	None
C403.11 Construction of HVAC system elements		Added new code section C403.11. No effect on cost.	Same as change between 2015 IECC and 2018 IECC	None	None
C403.11.1 Duct and plenum insulation and sealing (Mandatory)		Changed code section number C403.2.9 and labeled it mandatory. No effect on cost.	Section title has text "construction" and organized differently.	None	None

Table A: Commercial Code Change Summary for 6th Edition (2017) Florida Energy Code vs. 2018 IECC (continued)

2018 IECC Section and Title	ICC Code Change No	Change Summary b/t 2015 IECC and 2018 IECC	Change Summary b/t 2017 FEC and 2018 IECC	Anticipated Energy Impact on FEC if Adopted*	Anticipated Cost Impact on FEC if Adopted*
C403.11.2 Duct construction (Mandatory)	CE119-16	Changed code section number C403.2.9.1 and labeled it mandatory. No change to text. No effect on cost.	Same as change between 2015 IECC and 2018 IECC. FEC code is organized differently.	None	None
C403.11.2.1 Low-pressure duct systems (Mandatory)		Changed code section number C403.2.9.1.1 and labeled it mandatory. No effect on cost.	Same as change between 2015 IECC and 2018 IECC. FEC code is organized differently.	None	None
C403.11.2.2 Medium-pressure duct systems (Mandatory)		Changed code section number C403.2.9.1.2 and labeled it mandatory. No change to text. No effect on cost.	Same as change between 2015 IECC and 2018 IECC. FEC code is organized differently.	None	None
C403.11.2.3 High-pressure duct systems (Mandatory)		Changed code section number C403.2.9.1.3, labeled it mandatory and updated cross-referenced code section. No effect on cost.	Same as change between 2015 IECC and 2018 IECC. FEC code is organized differently.	None	None
C403.11.3 Piping insulation (Mandatory)		Changed code section number C403.2.10, labeled it mandatory and updated cross-referenced code section. No effect on cost.	Same as change between 2015 IECC and 2018 IECC	None	None
C403.11.3.1 Protection of piping insulation (Mandatory)		Changed code section number C403.2.10.1, labeled it mandatory. No change to text. No effect on cost.	Same as change between 2015 IECC and 2018 IECC	None	None
C403.12 Mechanical systems located outside of the building thermal envelope		Added new code section C403.12. No effect on cost.	Same as change between 2015 IECC and 2018 IECC	None	None
C403.12.1 Heating outside a building (Mandatory)		Changed code section number C403.2.13, labeled it mandatory. No effect on cost.	Same as change between 2015 IECC and 2018 IECC	None	None
C403.12.2 Snow- and ice-melt system controls (Mandatory)		Changed code section number C403.2.4.5, labeled it mandatory. No change to text. No effect on cost.	Same as change between 2015 IECC and 2018 IECC	None	None
C403.12.3 Freeze protection system controls (Mandatory).		Changed code section number C403.2.4.6, labeled it mandatory. No change to text. No effect on cost.	Same as change between 2015 IECC and 2018 IECC	None	None

Table A: Commercial Code Change Summary for 6th Edition (2017) Florida Energy Code vs. 2018 IECC (continued)

2018 IECC Section and Title	ICC Code Change No	Change Summary b/t 2015 IECC and 2018 IECC	Change Summary b/t 2017 FEC and 2018 IECC	Anticipated Energy Impact on FEC if Adopted*	Anticipated Cost Impact on FEC if Adopted*
C202 FAN SYSTEM DESIGN CONDITIONS	CE122-16	Modified definition. Design supply flow rate sizing does not include economizer operating condition. No effect on cost.	Same as change between 2015 IECC and 2018 IECC	None	None
C403.8.1 Allowable fan horsepower (Mandatory)		Changed code section number C403.2.12.1 and edited the text. Included in CE119-16. No effect on cost.	Same as change between 2015 IECC and 2018 IECC	None	None
C403.10.2 Walk-in coolers and walk-in freezers	CE126-16	Changed code section number C403.2.16, labeled it mandatory. No change to text. No effect on cost.	Same as change between 2015 IECC and 2018 IECC	None	None
C403.10.2.1 Performance standards (Mandatory)		Added new mandatory subsection and related tables: TABLE C403.2.16.1(1), TABLE C403.2.16.1(2) and TABLE C403.2.16.1(3). Increases costs. New US federal minimum efficiency requirement for walk-in coolers and freezers. Also provides design flexibility.	Same as change between 2015 IECC and 2018 IECC	Decreases Energy Use	Increases costs
C403.3.1 Equipment sizing	CE127-16	Modified equipment sizing section C403.2.2. Equipment size shall be not greater than that of the smallest available equipment size that exceeds the loads. No effect on cost.	Same as change between 2015 IECC and 2018 IECC	None	None
C403.3.1 Equipment sizing	CE128-16	Edited exceptions of section C403.2.2. Replaced “have the capable” with “are configured”. No effect on cost.	Same as change between 2015 IECC and 2018 IECC	None	None
C403.4.1.2 Deadband		Edited section C403.2.4.1.2. Replaced “capable of providing” with “configured to provide”. Labeled it Mandatory. No effect on cost.	Same as change between 2015 IECC and 2018 IECC	None	None
C403.4.1.3 Setpoint overlap restriction		Edited section C403.2.4.1.3. Replaced “provided with the capability” with “configured”. Labeled it Mandatory. No effect on cost.	Same as change between 2015 IECC and 2018 IECC	None	None

Table A: Commercial Code Change Summary for 6th Edition (2017) Florida Energy Code vs. 2018 IECC (continued)

2018 IECC Section and Title	ICC Code Change No	Change Summary b/t 2015 IECC and 2018 IECC	Change Summary b/t 2017 FEC and 2018 IECC	Anticipated Energy Impact on FEC if Adopted*	Anticipated Cost Impact on FEC if Adopted*
C403.4.2.1 Thermostatic setback	CE128-16	Edited section C403.2.4.2.1. Removed “capabilities” from the title. Replaced “have the capability” with “be configured”. Labeled it Mandatory. No effect on cost.	Same as change between 2015 IECC and 2018 IECC	None	None
C403.4.2.2 Thermostatic setback and shutdown		Edited section C403.2.4.2.2. Removed “capabilities” from the title. Replaced “capable of being adjusted” with “configured”. Labeled it Mandatory. No effect on cost.	Same as change between 2015 IECC and 2018 IECC	None	None
C403.4.2.3 Automatic start		Edited section C403.2.4.2.3. Removed “capabilities” from the title. Replaced text “capable of” with “configured to”. Labeled it Mandatory. No effect on cost.	Same as change between 2015 IECC and 2018 IECC	None	None
C403.12.2 Snow- and ice-melt system controls		Edited section C403.2.4.5. Replaced “capability of shutting” with “configured to shut” and “will allow” with “is configured to”. No effect on cost.	Same as change between 2015 IECC and 2018 IECC	None	None
C403.5.5 Economizer fault detecting and diagnostics (FDD) (Mandatory)		Edited section C403.2.4.7. Replaced text “capable of providing” with “configured to provide”, “capable of reporting” with “configured to report” and “capability of detecting” with “configured to detect”. Labeled it Mandatory. No effect on cost.	Same as change between 2015 IECC and 2018 IECC	None	None
C403.7.4 Energy recovery ventilation systems (Mandatory)		Edited section C403.2.7. Replaced text “have the capability” with “be configured”. Labeled it Mandatory. No effect on cost.	Same as change between 2015 IECC and 2018 IECC	None	None
C403.7.5 Kitchen exhaust systems (Mandatory)		Edited section C403.2.8. Replaced “capable of” with “configured to provide”. Labeled it Mandatory. No effect on cost.	Same as change between 2015 IECC and 2018 IECC	None	None
C403.10.2 Walk-in coolers and walk-in freezers (Mandatory)		Edited section C403.2.16. Replaced text “capable of reducing” with “configured to reduce”. It is Mandatory. No effect on cost.	Same as change between 2015 IECC and 2018 IECC	None	None

Table A: Commercial Code Change Summary for 6th Edition (2017) Florida Energy Code vs. 2018 IECC (continued)

2018 IECC Section and Title	ICC Code Change No	Change Summary b/t 2015 IECC and 2018 IECC	Change Summary b/t 2017 FEC and 2018 IECC	Anticipated Energy Impact on FEC if Adopted*	Anticipated Cost Impact on FEC if Adopted*
C403.5.1 Integrated economizer control	CE128-16	Edited section C403.3.1. Replaced “capable of providing” with “configured to provide”. Labeled it Mandatory. No effect on cost.	Same as change between 2015 IECC and 2018 IECC	None	None
C403.5.3.1 Design capacity		Edited section C403.3.3.1. Replaced text “capable of modulating” with “configured to modulate”. No effect on cost.	Same as change between 2015 IECC and 2018 IECC	None	None
C403.5.3.2 Control signal		Edited section C403.3.3.2. Replaced “capable of being sequenced” with “configured to sequence the dampers”. No effect on cost.	Same as change between 2015 IECC and 2018 IECC	None	None
C403.5.3.3 High-limit shutoff		Edited section C403.3.3.3. Replaced “capable of automatically reducing” with “configured to automatically reduce”. No effect on cost.	Same as change between 2015 IECC and 2018 IECC	None	None
C403.5.4.1 Design capacity		Edited section C403.3.4.1. Replaced “capable of cooling” with “configured to cool”. No effect on cost.	Same as change between 2015 IECC and 2018 IECC	None	None
C403.6.8 Set points for direct digital control		Edited section C403.4.1.3. Replaced “capable of” with “configured to provide”. No effect on cost.	Same as change between 2015 IECC and 2018 IECC	None	None
C403.4.3 Hydronic systems controls		Edited section C403.4.2. Replaced text “capable of sequencing” with “configured to sequence”. No effect on cost.	Same as change between 2015 IECC and 2018 IECC	None	None
C403.4.3.3.1 Temperature dead band		Edited section C403.4.2.3.1. Replaced text “have the capability” with “are configured”. No effect on cost	Same as change between 2015 IECC and 2018 IECC	None	None
C403.4.4 Part-load controls		Edited section C403.4.2.4. Replaced text “have the capability” with “are configured”. No effect on cost	Same as change between 2015 IECC and 2018 IECC	None	None
C403.4.5 Pump isolation		Edited section C403.4.2.6. Replaced text “have the capability” with “be capable of and configured”. No effect on cost	Same as change between 2015 IECC and 2018 IECC	None	None

Table A: Commercial Code Change Summary for 6th Edition (2017) Florida Energy Code vs. 2018 IECC (continued)

2018 IECC Section and Title	ICC Code Change No	Change Summary b/t 2015 IECC and 2018 IECC	Change Summary b/t 2017 FEC and 2018 IECC	Anticipated Energy Impact on FEC if Adopted*	Anticipated Cost Impact on FEC if Adopted*
C403.6 Requirements for mechanical systems serving multiple zones	CE128-16	Edited section C403.4.4. Deleted text “complex” from the title, replaced text “capable of being controlled” with “configured”, “capable of operating” with “configured to operate” and “capable of preventing” with “configured to prevent”. No effect on cost.	Same as change between 2015 IECC and 2018 IECC	None	None
C403.6.2 Single-duct VAV systems, terminal devices		Edited section C403.4.4.1 Replaced text “reducing” with “and configured to reduce”. No effect on cost	Same as change between 2015 IECC and 2018 IECC	None	None
C403.6.3 Dual-duct and mixing VAV systems, terminal devices		Edited section C403.4.4.2 Replaced text “capable of reducing” with “configured to reduce”. No effect on cost.	Same as change between 2015 IECC and 2018 IECC	None	None
C403.6.5 Supply-air temperature reset controls		Edited section C403.4.4.5 Replaced text “capable of resetting” with “configured to reset”. No effect on cost	Same as change between 2015 IECC and 2018 IECC	None	None
C405.2.3.1 Daylight-responsive control function		Edited section C405.2.3.1 Replaced text “capable of a complete” with “configured to completely”. No effect on cost.	Same as change between 2015 IECC and 2018 IECC	None	None
C405.2.4 Specific application controls		Edited section C405.2.4 Replaced text “capable of” with “configured to”. No effect on cost.	Same as change between 2015 IECC and 2018 IECC	None	None
C406.4 Enhanced digital lighting controls		Edited section C406.4 Replaced text “capable of” with “configured for” and deleted “capable of being”. No effect on cost.	Same as change between 2015 IECC and 2018 IECC	None	None
TABLE C403.2.3(2)	CE130-16	Updated footnotes of Table C403.2.3(2) Minimum Efficiency Requirements of electrically operated Unitary and Applied Heat Pumps. No effect on cost.	Same as change between 2015 IECC and 2018 IECC	None	None
TABLE C403.2.3(1)	CE131-16	Updated footnotes of Table C403.2.3(1) Minimum Efficiency Requirements of electrically operated Unitary Air-conditioner and Condensing Units. No effect on cost.	Same as change between 2015 IECC and 2018 IECC	None	None

Table A: Commercial Code Change Summary for 6th Edition (2017) Florida Energy Code vs. 2018 IECC (continued)

2018 IECC Section and Title	ICC Code Change No	Change Summary b/t 2015 IECC and 2018 IECC	Change Summary b/t 2017 FEC and 2018 IECC	Anticipated Energy Impact on FEC if Adopted*	Anticipated Cost Impact on FEC if Adopted*
TABLE C403.2.3(3)	CE132-16	Updated Table C403.2.3(3) Minimum Efficiency Requirements of electrically operated: Packaged Terminal Air Conditioners, Packaged Terminal Air Heat Pumps, Single Package Vertical Air Conditioners, Single Package Vertical Heat Pumps, Room Air Conditioners and Room Air Conditioner heat Pumps. US federal minimum efficiency requirement increased. Increases cost. DOE analysis shows that minimum payback period is 2.1-10.1 years.	Same as change between 2015 IECC and 2018 IECC	Decreases Energy Use	Increases cost
C403.4.1.4 Heated or cooled vestibules (Mandatory)	CE136-16	Added new code section C403.4.1.4. Defines heating and cooling temperature limits for heated or cooled vestibules and air curtain. It is mandatory. Increases cost.	Same as change between 2015 IECC and 2018 IECC	Decreases Energy Use	Increases cost.
C202 General Definition ACCESS (TO)	CE137-16 Part I	Added new definition to replace an existing one.	Same as change between 2015 IECC and 2018 IECC	None	None
C202 General Definition READY ACCESS (TO)		Added new definition to replace an existing one.	Same as change between 2015 IECC and 2018 IECC	None	None
C105.1 General		Edited section C104.1. Deleted “accessible and”, replaced “accessible” with “visible” and “exposed” with “be able to access”. No effect on cost.	Same as change between 2015 IECC and 2018 IECC	None	None
None		Edited section C303.3. Replaced “accessible” with “visible”. No effect on cost.	Same as change between 2015 IECC and 2018 IECC	None	None
C403.5.5 Economizer fault detection and diagnostics (FDD)		Edited section C403.2.4.7. Replaced text “accessible” with “available for access”. No effect on cost.	Same as change between 2015 IECC and 2018 IECC	None	None
C404.6 Heated-water circulating and temperature maintenance systems		Edited section C404.6. Replaced text “accessible” with “in a location with access”. No effect on cost.	Same as change between 2015 IECC and 2018 IECC	None	None

Table A: Commercial Code Change Summary for 6th Edition (2017) Florida Energy Code vs. 2018 IECC (continued)

2018 IECC Section and Title	ICC Code Change No	Change Summary b/t 2015 IECC and 2018 IECC	Change Summary b/t 2017 FEC and 2018 IECC	Anticipated Energy Impact on FEC if Adopted*	Anticipated Cost Impact on FEC if Adopted*
C404.9.1 Heaters	CE137-16 Part I	Edited section C404.9.1. Deleted text “readily accessible” and added “in a location with access”. No effect on cost.	Same as change between 2015 IECC and 2018 IECC	None	None
C405.2.5 Manual controls		Edited section C405.2.2.3. Added text “ready access to occupants”. No effect on cost.	Same as change between 2015 IECC and 2018 IECC	None	None
C405.2.3.1 Daylight-responsive control function		Edited section C405.2.3.1. Deleted text “readily accessible” and added “in a location with ready access” in item #3. No effect on cost.	Same as change between 2015 IECC and 2018 IECC	None	None
C405.2.4 Specific application controls		Edited section C405.2.4. Deleted text “readily accessible” and added “in a location with ready access” in item #4. No effect on cost.	Same as change between 2015 IECC and 2018 IECC	None	None
C408.3.1.3 Daylight responsive controls		Edited section C408.3.1.3. Deleted text “location” and “readily accessible” and added “in a location for ready access” in item #3. No effect on cost.	Same as change between 2015 IECC and 2018 IECC	None	None
C403.4.2 Off-hour controls (Mandatory)		Edited section C403.2.4.2. Deleted text “a readily accessible” and added “located with ready access” in item #2 in the exception section. And labeled it Mandatory. No effect on cost.	Same as change between 2015 IECC and 2018 IECC	None	None
C202 General Definition ACCESSIBLE (TO)		Deleted definition for “ACCESSIBLE (TO)”.	Same as change between 2015 IECC and 2018 IECC	None	None
C202 General Definition READILY ACCESSIBLE (TO)		Deleted definition for “READILY ACCESSIBLE (TO)”.	Same as change between 2015 IECC and 2018 IECC	None	None
C202 General Definition ISOLATION DEVICES	CE138-16	Added new definition for ISOLATION DEVICES.	Same as change between 2015 IECC and 2018 IECC	None	None
C202 General Definition NETWORKED GUEST ROOM CONTROL SYSTEM		Added new definition for NETWORKED GUEST ROOM CONTROL SYSTEM.	Same as change between 2015 IECC and 2018 IECC	None	None

Table A: Commercial Code Change Summary for 6th Edition (2017) Florida Energy Code vs. 2018 IECC (continued)

2018 IECC Section and Title	ICC Code Change No	Change Summary b/t 2015 IECC and 2018 IECC	Change Summary b/t 2017 FEC and 2018 IECC	Anticipated Energy Impact on FEC if Adopted*	Anticipated Cost Impact on FEC if Adopted*
C403.7.6 Automatic control of HVAC systems serving guest rooms	CE138-16	Added new code section C403.7.6. Control requirement for each guest room in buildings containing over 50 guest rooms. Increases cost but cost effective.	Same as change between 2015 IECC and 2018 IECC	Decreases Energy Use	Increases cost
C403.7.6.1 Temperature setpoint controls		Added new code section C403.7.6.1. Add set point temperature setback or setup control requirement when each guest room is not occupied. Increases cost but cost effective.	Same as change between 2015 IECC and 2018 IECC	Decreases Energy Use	Increases cost
C403.7.6.2 Ventilation controls		Added new code section C403.7.6.2. Controls shall be provided on each HVAC system that can automatically turn off the ventilation and exhaust fans 30 minutes after the occupant leaves the guest room. Increases cost but cost effective.	Same as change between 2015 IECC and 2018 IECC	Decreases Energy Use	Increases cost
C403.7.7 Shutoff dampers (Mandatory)	CE139-16	Edited code section C403.2.4.3. Gravity dampers shall be permitted to be used “for exhaust and relief” system. Increases cost. But exception allows alternative design for Florida climate zones 1 and 2.	Same as change between 2015 IECC and 2018 IECC	Decreases Energy Use	Increases cost
C403.7.1 Demand controlled ventilation (Mandatory)	CE141-16	Edited existing code section C403.2.6.1. Average occupant load of 25 people “or greater” per 1,000. It is Mandatory. No effect on cost.	Same as change between 2015 IECC and 2018 IECC	None	None
C403.7.3 Ventilation air heating control. (Mandatory)	CE143-16	Added a new code section C403.7.3. This change limits heating the DOAS supply air to 60°F when the majority of the zones served by the DOAS system require cooling. It is Mandatory. No effect on cost.	Same as change between 2015 IECC and 2018 IECC	Decreases Energy Use	None
C403.11.2 Duct construction	CE149-16	Edited code section C403.2.9.1. No text change. No effect on cost.	Same as change between 2015 IECC and 2018 IECC	None	None

Table A: Commercial Code Change Summary for 6th Edition (2017) Florida Energy Code vs. 2018 IECC (continued)

2018 IECC Section and Title	ICC Code Change No	Change Summary b/t 2015 IECC and 2018 IECC	Change Summary b/t 2017 FEC and 2018 IECC	Anticipated Energy Impact on FEC if Adopted*	Anticipated Cost Impact on FEC if Adopted*
C403.11.2.3 High-pressure duct systems	CE149-16	Edited code section C403.2.9.1.3. Changes the static pressures limit to be “equal to or greater than” 3 inches of water gauge instead of “greater than”. No effect on cost.	Same as change between 2015 IECC and 2018 IECC. <i>Needs review since it organized differently.</i>	None	None
TABLE C403.8.1 (2)	CE150-16	Editorial changes to TABLE C403.2.12.1 (2). For consistency with ASHRAE 90.1. No effect on cost.	Same as change between 2015 IECC and 2018 IECC	None	None
TABLE C403.3.2 (8)	CE151-16	Editorial changes to TABLE C403.2.3 (8). Updates to the most recent CTI Standard for Performance Rating. No effect on cost.	Same as change between 2015 IECC and 2018 IECC	None	None
TABLE C403.3.2 (8)	CE152-16	Changed TABLE C403.2.3 (8) minimum efficiency requirement for Propeller or axial fan closed-circuit cooling towers from 14.0 to 16.1 gpm/hp to match ASHRAE 90.1 requirement. No effect on cost.	Same as change between 2015 IECC and 2018 IECC	Decreases Energy Use	None
TABLE C403.3.2 (4)	CE153-16	Changed TABLE C403.2.3 (4) minimum efficiency requirement for gas-fired and oil-fired Warm-air furnaces to match the US federal minimum efficiency requirement. Increases first cost but also decreases energy use. Affects capacity range < 225,000 Btu/h only.	FEC already meets the minimum energy efficiency requirements for warm-air furnaces. No need for change.	Decreases Energy Use	Increases cost
TABLE C403.3.2 (5)	CE154-16	Changed TABLE C403.2.3 (5) minimum efficiency requirement for hot water and steam boilers to match the US federal minimum efficiency requirement. Increases first cost but also saves energy. Affects capacity range < 300,000 Btu/h only.	Same as change between 2015 IECC and 2018 IECC	Decreases Energy Use	Increases cost
TABLE C403.7.4(2)	CE155-16	Modified TABLE C403.2.7 (2) label. Also increases the minimum ERV requirements from zero to a reasonable minimum size for smaller units. No effect on cost.	Same as change between 2015 IECC and 2018 IECC	None	None

Table A: Commercial Code Change Summary for 6th Edition (2017) Florida Energy Code vs. 2018 IECC (continued)

2018 IECC Section and Title	ICC Code Change No	Change Summary b/t 2015 IECC and 2018 IECC	Change Summary b/t 2017 FEC and 2018 IECC	Anticipated Energy Impact on FEC if Adopted*	Anticipated Cost Impact on FEC if Adopted*
C403.5 Economizers (Prescriptive)	CE156-16	Modified code section C403.3. Corrects gaps and conflicts in the economizer provisions. Also modified exceptions. No effect on cost.	Same as change between 2015 IECC and 2018 IECC	None	None
C403.5.3 Air economizers		Edited code section C403.3.3. Editorial correction. No effect on cost.	Same as change between 2015 IECC and 2018 IECC	None	None
C403.5.4 Water-side economizers		Edited code section C403.3.4. Editorial correction. No effect on cost.	Same as change between 2015 IECC and 2018 IECC	None	None
C101.4.1 Mixed occupancy Residential and Commercial buildings	CE157-16 Part I	Edited code section C101.4.1. Modified the title and text of code. No effect on cost.	Same as change between 2015 IECC and 2018 IECC	None	None
C101.5 Compliance		No change to text of code section C101.5. No effect on cost.	Same as change between 2015 IECC and 2018 IECC	None	None
[General Definitions] C202 STOREFRONT		Edited definition of STOREFRONT. Deleted “nonresidential”. No effect on cost.	Same as change between 2015 IECC and 2018 IECC	None	None
[General Definitions] C202 GROUP R		Added new definition for GROUP R. No effect on cost.	Same as change between 2015 IECC and 2018 IECC	None	None
C403.5 Economizers (Prescriptive)		Edited code Section C403.3. Replaced “residential” with “Group R occupancy”. No effect on cost.	Same as change between 2015 IECC and 2018 IECC	None	None
C406.7 Reduced energy use in service water heating		Edited code Section C406.7. Replaced “residential” with “Group R occupancy”. No effect on cost.	Same as change between 2015 IECC and 2018 IECC	None	None
TABLE C407.5.1 (2) HVAC SYSTEMS MAP		Edited footnote “c” of existing Table C407.5.1 (2). Replaced “residential space” with “Group R occupancy”. No effect on cost.	Same as change between 2015 IECC and 2018 IECC	None	None
C407.5.2.3 Group R-2 occupancy buildings		Edited code Section C407.5.2.3 title, and deleted “Residential” from text section. No effect on cost.	Same as change between 2015 IECC and 2018 IECC.	None	None

Table A: Commercial Code Change Summary for 6th Edition (2017) Florida Energy Code vs. 2018 IECC (continued)

2018 IECC Section and Title	ICC Code Change No	Change Summary b/t 2015 IECC and 2018 IECC	Change Summary b/t 2017 FEC and 2018 IECC	Anticipated Energy Impact on FEC if Adopted*	Anticipated Cost Impact on FEC if Adopted*
TABLE C403.5(2) EQUIPMENT EFFICIENCY PERFORMANCE EXCEPTION FOR ECONOMIZERS	CE158-16 Part I	Modified TABLE C403.3(2). Air economizers are allowed to be replaced with 10% more efficiency HVAC equipment in climate zones 2A, 3A, and 4A in addition to 2B, 3B, and 4B. Provides design flexibility. No effect on cost.	Same as change between 2015 IECC and 2018 IECC. But this option is not allowed in the 2017 FEC. Needs to be reassessed.	None	None
C403.4.3.3.2 Heat rejection	CE160-16	Modified code Section C403.4.2.3.2. Changed the section title. This code section applies to hydronic water loop heat pump systems in climate zones 3 through 8 by combining code subsections C403.4.2.3.2.1 and C403.4.2.3.2.2. No effect on cost.	Same as change between 2015 IECC and 2018 IECC. No effect on Florida energy code since the change applies to climate zones 3 through 8.	None	None
None		Deleted code subsection C403.4.2.3.2.1 without substitution. No effect on cost.	Same as change between 2015 IECC and 2018 IECC. No effect one Florida energy code.	None	None
None		Deleted code subsection C403.4.2.3.2.2 without substitution. No effect on cost.	Same as change between 2015 IECC and 2018 IECC. No effect one Florida energy code.	None	None
C403.4.4 Part-load controls	CE162-16	Modified code section C403.4.2.4. Edited the text and reduced the hydronic system capacity from 500,000 to 300,000 Btu/h for the code to be applicable. Also added new table, TABLE C403.4.4. Variable speed drive demand controlled pumps capacity limit by climate zones. Increases cost. PNNL study shows that this code change is cost effective, SIR=1.2.	Same as change between 2015 IECC and 2018 IECC	Decreases Energy Use	Increases cost
C403.4.5 Pump isolation	CE163-16	Edited code section C403.4.2.6. Replaced text “boiler plant” with “boiler system”. This is editorial change. No effect on cost.	Same as change between 2015 IECC and 2018 IECC	None	None

Table A: Commercial Code Change Summary for 6th Edition (2017) Florida Energy Code vs. 2018 IECC (continued)

2018 IECC Section and Title	ICC Code Change No	Change Summary b/t 2015 IECC and 2018 IECC	Change Summary b/t 2017 FEC and 2018 IECC	Anticipated Energy Impact on FEC if Adopted*	Anticipated Cost Impact on FEC if Adopted*
C403.9 Heat rejection equipment	CE165-16	Modified code section C403.4.3. Heat rejection equipment shall comply with requirements in this section with exception of heat rejection devices whose energy usage is included in the equipment efficiency rating and listed in Tables C403.2.3(6) and C403.2.3(7). Increases cost. PNNL study shows that this code change is cost effective, SIR=1.4.	Same as change between 2015 IECC and 2018 IECC	Decreases Energy Use	Increases cost
C403.9.1 Fan speed control		Modified code section C403.4.3.1. Changed the title from “General” to “Fan speed control”. Reduced the variable speed fan motor power threshold from 7.5 hp (5.6 kW) to 5 hp (3.7 kW) and modified the exception. Increases cost. PNNL study shows that this code change is cost effective, SIR=1.4.	Same as change between 2015 IECC and 2018 IECC	Decreases Energy Use	Increases cost
C403.9.2 Multiple-cell heat rejection equipment		Modified code section C403.4.3.2. Changed the title from “Fan speed control” to “Multiple-cell heat rejection equipment”. Reduced the variable speed fan motor power threshold to 5 hp (3.7 kW) and modified the exception. Increases cost. PNNL study shows that this code change is cost effective, SIR=1.4.	Same as change between 2015 IECC and 2018 IECC	Decreases Energy Use	Increases cost
None		Deleted code section C403.4.3.2.1 Fan motors not less than 7.5 hp without substitution. No effect on cost.	Same as change between 2015 IECC and 2018 IECC	None	None
None		Deleted code section C403.4.3.2.2 without substitution. No effect on cost.	Same as change between 2015 IECC and 2018 IECC	None	None
C403.6 Requirements for mechanical systems serving multiple zones	CE166-16	Modified code section C403.4.4. Moved part of code text and renamed title to “Requirement for mechanical system serving multiple zones” by removing the text “complex”. No effect on cost.	Same as change between 2015 IECC and 2018 IECC	None	None

Table A: Commercial Code Change Summary for 6th Edition (2017) Florida Energy Code vs. 2018 IECC (continued)

2018 IECC Section and Title	ICC Code Change No	Change Summary b/t 2015 IECC and 2018 IECC	Change Summary b/t 2017 FEC and 2018 IECC	Anticipated Energy Impact on FEC if Adopted*	Anticipated Cost Impact on FEC if Adopted*
C403.6.1 Variable air volume and multiple zone systems	CE166-16	Added a new code section C403.6.1 by moving part of code section C403.4.4. Replaced the proposed title “Zone controls” with “Variable air volume and multiple zone systems”. No effect on cost.	Same as change between 2015 IECC and 2018 IECC	None	None
C403.6.6 Multiple-zone VAV system ventilation optimization control	CE167-16	Modified code section C403.4.4.6. Deleted exceptions for exhaust air ERV optimization item 2. This code change is cost effective in all climate zones. This code change is similar to ASHRAE 90.1-2013 addendum j.	Same as change between 2015 IECC and 2018 IECC	Decreases Energy Use	Increases cost
C403.6.7 Parallel-flow fan-powered VAV air terminal control	CE168-16	Added a new code section C403.4.4.7. Parallel-flow fan-powered VAV air terminals shall have automatic controls configured to turn-off the terminal fan when there is no heating. This is a control logic change. No effect on cost. Saves energy.	Same as change between 2015 IECC and 2018 IECC	Decreases Energy Use	None
TABLE C404.2 MINIMUM PERFORMANCE OF WATER-HEATING EQUIPMENT	CE171-16	Updated Table C404.2, minimum efficiency values and equations of water heating equipment to meet the US federal minimum efficiency requirement. Increases equipment cost and reduces operating energy cost.	Same as change between 2015 IECC and 2018 IECC	Decreases Energy Use	Increases cost
C404.2.1 High input-rated service water-heating systems	CE172-16	Edited code section C404.2.1 for clarification. Exception is allowed when 25% or more of the service water heating requirement energy source is on-site generation. No effect on cost.	Same as change between 2015 IECC and 2018 IECC	None	None
C404.3 Heat Traps for Hot Water Storage Tanks	CE173-16	Edited code section C404.3. Editorial changes for heat trap requirement clarification. Also modified the title. No effect on cost.	Same as change between 2015 IECC and 2018 IECC	None	None

Table A: Commercial Code Change Summary for 6th Edition (2017) Florida Energy Code vs. 2018 IECC (continued)

2018 IECC Section and Title	ICC Code Change No	Change Summary b/t 2015 IECC and 2018 IECC	Change Summary b/t 2017 FEC and 2018 IECC	Anticipated Energy Impact on FEC if Adopted*	Anticipated Cost Impact on FEC if Adopted*
C404.7 Demand recirculation controls	CE174-16 Part I	Edited code section C404.7. Editorial changes for clarification. No effect on cost.	Same as change between 2015 IECC and 2018 IECC	None	None
[General Definitions] C202 DEMAND RECIRCULATION WATER SYSTEM		Edited existing definition for “DEMAND RECIRCULATION WATER SYSTEM”. No effect on cost.	Same as change between 2015 IECC and 2018 IECC	None	None
C404.9.3 Covers	CE177-16 Part I	Modified code section C404.9.3. Increased the energy savings threshold from 70 to 75% for pool cover exception. Defined the operating season as at least 3 months, and replaced the text “solar source” with “on-site renewable energy system”. Increases cost and decreases energy use. 7% initial cost increase.	Same as change between 2015 IECC and 2018 IECC	Decreases Energy Use	Increases cost
C405.1 General (Mandatory)	CE179-16	Modifying the exception section of C405.1 lighting system control requirements in dwelling unit and sleeping quarters of commercial buildings. No cost increase, rather it may reduce energy cost.	Same as change between 2015 IECC and 2018 IECC	None	None
C405.2.2 Time-switch controls		Modifying code section of C405.2.2. Removed automatic lighting controls requirement exceptions for sleeping units where there is manual control. No cost increase, instead may reduce first cost.	Same as change between 2015 IECC and 2018 IECC	None	None
C405.2.3 Daylight-response controls		Modified code section C405.2.3. Removed daylight response controls requirement exceptions for dwelling and sleeping units. No cost increase but may reduce first cost.	Same as change between 2015 IECC and 2018 IECC	None	None

Table A: Commercial Code Change Summary for 6th Edition (2017) Florida Energy Code vs. 2018 IECC (continued)

2018 IECC Section and Title	ICC Code Change No	Change Summary b/t 2015 IECC and 2018 IECC	Change Summary b/t 2017 FEC and 2018 IECC	Anticipated Energy Impact on FEC if Adopted*	Anticipated Cost Impact on FEC if Adopted*
C405.2.4 Specific application controls	CE179-16	Modified code section C405.2.4. Replaced “guest suites” with “guest suites-sleeping units” for clarification. Spaces where patient care is provided is now an exception. Also added light reduction controls requirement for permanently installed luminaires in dwelling units to be per section C405.2.2.2 or C405.2.1.1 when using LPD compliance path. No cost increase.	Same as change between 2015 IECC and 2018 IECC	None	None
C405.3.1 Total connected interior lighting power		Modified code section C405.4.1. Removed “Lighting in sleeping units to comply with section R404.1” from exception item 1.2. No cost increase.	Same as change between 2015 IECC and 2018 IECC	None	None
C405.1 General (Mandatory)	CE180-16	Edited code section C405.1. Replaced text “Walk-in” with “Lighting installed in walk-in” and added a text “the lighting requirement of” for clarification of the language. Also changed cross-referenced code section number from C403.2.15 or C403.2.16 to C403.10.1 or C403.10.2. No cost increase.	Same as change between 2015 IECC and 2018 IECC	None	None
C405.2 Lighting controls (Mandatory)	CE182-16	Edited code section C405.2. Edited cross-referenced code section numbers. No cost increase.	Same as change between 2015 IECC and 2018 IECC	None	None
C405.2.4 Specific applications controls		Edited code section C405.2.4 for editorial simplification. Lighting control by an occupant sensor shall comply with Section C405.2.1.1 and a time-switch control shall comply with section C405.2.2.1. Edited item 1 to include sub-items 1.1 through 1.4, edited item 3 to require nonvisual lighting shall be controlled using time-switch control and comply with Section Cr405.2.2.1. Deleted item 4. No cost increase.	Same as change between 2015 IECC and 2018 IECC	None	None

Table A: Commercial Code Change Summary for 6th Edition (2017) Florida Energy Code vs. 2018 IECC (continued)

2018 IECC Section and Title	ICC Code Change No	Change Summary b/t 2015 IECC and 2018 IECC	Change Summary b/t 2017 FEC and 2018 IECC	Anticipated Energy Impact on FEC if Adopted*	Anticipated Cost Impact on FEC if Adopted*
[General Definitions] C202 LUMINAIRE LEVEL LIGHTING CONTROLS	CE183-16	Added new definition C202 LUMINAIRE LEVEL LIGHTING CONTROLS. No cost increase.	Same as change between 2015 IECC and 2018 IECC	None	None
C405.2 Lighting controls (Mandatory)		Modified code section C405.2. Modified the code to emphasize luminaire level lighting controls (LLLC) option based on specifics of existing lighting code requirements. No cost increase. Provides design flexibility.	Same as change between 2015 IECC and 2018 IECC	None	None
C405.2.1 Occupant sensor controls	CE184-16	Modified code section C405.2.1. Deleted some space types and edited some of the existing space types for clarity and consistency with other sections. No cost increase.	Same as change between 2015 IECC and 2018 IECC	None	None
C405.2.1 Occupant sensor controls		Edited code section C405.2.1. Added new space type, "Open plan office areas". No cost increase.	Same as change between 2015 IECC and 2018 IECC	None	None
C405.2.1.1 Occupant sensor control function		Edited code section C405.2.1.1. Occupant sensor control requirement modified to exclude "open plan office areas". No cost increase.	Same as change between 2015 IECC and 2018 IECC	None	None
C405.2.1.3 Occupant sensor control function in open plan office areas	CE185-16	Added new code section C405.2.1.3. Added occupant sensor control function in open plan office areas as a requirement. Increases cost but cost effective.	Same as change between 2015 IECC and 2018 IECC	Decreases Energy Use	Increases cost
C405.2.1.1 Occupant sensor control function	CE186-16	Edited code section C405.2.1.1. Occupant sensor control requirement for warehouse shall comply with Section C405.2.1.2 and Occupant sensor control requirement for other than warehouse shall comply with Section C405.2.1. Also edited the text as well. No cost increase.	Same as change between 2015 IECC and 2018 IECC	None	None
C405.2.1.2 Occupant sensor control function in warehouses		Code section C405.2.1.2. No change. No cost increase.	Same as change between 2015 IECC and 2018 IECC	None	None

Table A: Commercial Code Change Summary for 6th Edition (2017) Florida Energy Code vs. 2018 IECC (continued)

2018 IECC Section and Title	ICC Code Change No	Change Summary b/t 2015 IECC and 2018 IECC	Change Summary b/t 2017 FEC and 2018 IECC	Anticipated Energy Impact on FEC if Adopted*	Anticipated Cost Impact on FEC if Adopted*
C405.2.1.1 Occupant sensor control function	CE187-16	Modified code section C405.2.1.1. Lights shutoff time after occupant leaves the unit reduced from 30 to 20 minutes. No cost increase but saves lighting energy significantly.	Same as change between 2015 IECC and 2018 IECC	Decreases Energy Use	None
C405.2.2 Time-switch controls	CE188-16	Edited code section C405.2.2. Replaced text “automatic controls” with “time-switch controls” No cost increase.	Same as change between 2015 IECC and 2018 IECC	None	None
C405.2.2.1 Time-switch control function		Edited code section C405.2.2.1 for clarification. Edited applicable space type lists in exceptions, item 2.3. No cost increase.	Same as change between 2015 IECC and 2018 IECC	None	None
[General Definitions] C202 CAPTIVE KEY OVERRIDE	CE190-16	Added new definition for CAPTIVE KEY OVERRIDE. No cost increase.	Same as change between 2015 IECC and 2018 IECC	None	None
C405.2.2.1 Time-switch control function		Edited code section C405.2.2.1 for clarification. Edited to use the correct terminology. No cost increase.	Same as change between 2015 IECC and 2018 IECC	None	None
C405.2.4 Specific application controls		Edited code section of C405.2.4. Replaced text “captive key” with “card key” and “override system” with “controls” in the exceptions section. No cost increase.	Same as change between 2015 IECC and 2018 IECC	None	None
C405.2.5 Manual controls	CE191-16	Edited code section of C405.2.2.3. Replaced text “Shall” with “They shall” to clarify the manual controls for light. No cost increase.	Same as change between 2015 IECC and 2018 IECC	None	None
C405.2.3 Daylight-responsive controls	CE192-16	Edited code section of C405.2.3. Added a new exceptions for daylight responsive controls in new buildings with a lighting power less than or equal to a value calculated in Equation 4-9. Provides design flexibility. No cost increase.	Same as change between 2015 IECC and 2018 IECC	None	None

Table A: Commercial Code Change Summary for 6th Edition (2017) Florida Energy Code vs. 2018 IECC (continued)

2018 IECC Section and Title	ICC Code Change No	Change Summary b/t 2015 IECC and 2018 IECC	Change Summary b/t 2017 FEC and 2018 IECC	Anticipated Energy Impact on FEC if Adopted*	Anticipated Cost Impact on FEC if Adopted*
C405.3 Interior lighting power requirements (Prescriptive)	CE192-16	Edited code section of C405.4. Replaced text “lighting power” with “lighting power allowance” for clarification. No cost increase.	Same as change between 2015 IECC and 2018 IECC	None	None
C405.2.3.2 Sidelit zone	CE193-16	Edited code section of C405.2.3.2. Deleted text “Where located in existing building” to eliminate sidelit daylighting zone restriction on new buildings. No cost increase.	Same as change between 2015 IECC and 2018 IECC	None	None
C405.2.3.3 Toplit zone		Edited existing code section of C405.2.3.3. Deleted text “Where located in existing building” to reduce toplit daylighting zone restriction on new buildings. No cost increase.	Same as change between 2015 IECC and 2018 IECC	None	None
C405.2.4 Specific application controls	CE195-16	Edited code section C405.2.4. Deleted text “master” and “system” for clarity and may allow designers to choose less expensive option. May reduce cost while maintaining efficiency.	Same as change between 2015 IECC and 2018 IECC	None	None
C405.2.6 Exterior lighting controls	CE196-16	Edited code section C405.2.5. Edited exception for lighting for covered vehicle entrance exit from building and parking structures for eye adaptation. Removed decorative gas lighting system exception. And added new exception for “Lighting controlled from within dwelling units”. No cost increase.	Same as change between 2015 IECC and 2018 IECC	None	None
C405.2.6.1 Daylight shutoff		Added new code section C405.2.6.1. Lighting shall be automatically turned off when there is sufficient daylight. No cost increase.	Same as change between 2015 IECC and 2018 IECC	Decreases Energy Use	None
C405.2.6.2 Decorative lighting shutoff		Added new code section C405.2.6.2. Decorative lighting shutoff requirement. No cost increase.	Same as change between 2015 IECC and 2018 IECC	Decreases Energy Use	None
C405.2.6.3 Lighting setback		Added new code section C405.2.6.3. Lighting setback requirement. No cost increase.	Same as change between 2015 IECC and 2018 IECC	Decreases Energy Use	None

Table A: Commercial Code Change Summary for 6th Edition (2017) Florida Energy Code vs. 2018 IECC (continued)

2018 IECC Section and Title	ICC Code Change No	Change Summary b/t 2015 IECC and 2018 IECC	Change Summary b/t 2017 FEC and 2018 IECC	Anticipated Energy Impact on FEC if Adopted*	Anticipated Cost Impact on FEC if Adopted*
C405.2.6.4 Exterior time-switch control function	CE196-16	Added new code section C405.2.6.4. Exterior time-switch control function requirement. No cost increase.	Same as change between 2015 IECC and 2018 IECC	Decreases Energy Use	None
None	CE198-16	Deleted code section C405.3 without substitution. Exist signs lights wattage limits is already required by US federal regulation. No cost increase.	Same as change between 2015 IECC and 2018 IECC	None	None
C405.3 Interior lighting power requirements (Prescriptive)	CE201-16	Edited code section C405.4. Added text “interior” and “allowance”. No cost increase.	Same as change between 2015 IECC and 2018 IECC	None	None
C405.3.1 Total connected interior lighting power		Code section C405.4.1. No change to text. No cost increase.	Same as change between 2015 IECC and 2018 IECC	None	None
C405.3.2 Interior lighting power allowance		Edited code section C405.4.2. Added text “allowance” to the title. No cost increase.	Same as change between 2015 IECC and 2018 IECC	None	None
C406.1 Requirements		Edited code section C406.1. Deleted text “density system” from item 2. No cost increase.	Same as change between 2015 IECC and 2018 IECC	None	None
C406.3 Reduced lighting power density		Edited code section of C406.3. Edited the text, reduced total lighting power shall be less than 90% of the total allowance and updated cross-reference code section C405.3.1. Editorial change. No cost increase.	Same as change between 2015 IECC and 2018 IECC	None	None
None	CE202-16	Deleted general definition of C202 LOW-VOLTAGE LIGHTING. No cost increase.	Same as change between 2015 IECC and 2018 IECC	None	None
C405.3.1 Total connected interior lighting power		Edited code section C405.4.1. Edited equations, variable symbols and variables definitions in Equation 4-9 for clarity and consistent interpretation of the code. No cost increase.	Same as change between 2015 IECC and 2018 IECC	None	None

Table A: Commercial Code Change Summary for 6th Edition (2017) Florida Energy Code vs. 2018 IECC (continued)

2018 IECC Section and Title	ICC Code Change No	Change Summary b/t 2015 IECC and 2018 IECC	Change Summary b/t 2017 FEC and 2018 IECC	Anticipated Energy Impact on FEC if Adopted*	Anticipated Cost Impact on FEC if Adopted*
C405.3.1 Total connected interior lighting power	CE203-16	Edited code section C405.4.1. Deleted text “Exception 1”, renumbered the items, and changed item 1 text to “TV broadcast lighting for playing areas in sports arena”. No cost increase.	Same as change between 2015 IECC and 2018 IECC	None	None
C405.3.1 Total connected interior lighting power	CE204-16	Edited code section C405.4.1. Reduced the luminaire LTPB limit from 30 to 8 W/lin. ft or from 100 to 25 W/lin m. No cost increase.	Same as change between 2015 IECC and 2018 IECC	Decreases Energy Use	Decreases cost
TABLE C405.3.2 (1)	CE205-16	Added footnotes “a”, “b”, and “c” to LPD Table C405.4.2(1) for clarification for dwelling and sleeping units. No cost increase.	Same as change between 2015 IECC and 2018 IECC	None	None
TABLE C405.3.2 (2)		Added footnotes “c” and “d” to LPD Table C405.4.2(2) for clarification for dwelling and sleeping units LPD. No cost increase.	Same as change between 2015 IECC and 2018 IECC	None	None
TABLE C405.3.2 (1)	CE206-16	Reduced the LPD values in Table C405.4.2(1) for most of the building area types. Increases cost also but decreases energy use. Cost effective especially when the 2018 code become into effect due to decline in LED first cost and maintenance cost.	Same as change between 2015 IECC and 2018 IECC	Decreases Energy Use	Increases cost
TABLE C405.3.2 (2)		Reduced LPD values in Table C405.4.2(2) for most of the space types. Cost effective especially when the 2018 code become into effect due to decline in LED first cost and maintenance cost.	Same as change between 2015 IECC and 2018 IECC	Decreases Energy Use	Increases cost
TABLE C405.3.2 (2)	CE207-16	Added footnotes “c”, “d”, “e” and “f” to an existing Table C405.4.2(2) for clarification for Class I, II, III, and IV for sport arena facilities LPD. No cost increase.	Same as change between 2015 IECC and 2018 IECC	None	None

Table A: Commercial Code Change Summary for 6th Edition (2017) Florida Energy Code vs. 2018 IECC (continued)

2018 IECC Section and Title	ICC Code Change No	Change Summary b/t 2015 IECC and 2018 IECC	Change Summary b/t 2017 FEC and 2018 IECC	Anticipated Energy Impact on FEC if Adopted*	Anticipated Cost Impact on FEC if Adopted*
C405.3.2.2.1 Additional interior lighting power	CE209-16	Modified code section C405.4.2.2.1. Edited equation 4-10 and LPD values of additional lighting power allowance for retail display area. Increases cost but not life cycle cost, and decreases energy use. This is cost effective due to no net increase in life cycle cost.	Same as change between 2015 IECC and 2018 IECC	Decreases Energy Use	None
C405.3.2.2.1 Additional interior lighting power	CE210-16	Modified code section C405.4.2.2.1. Edited equation 4-10 and LPD values of additional lighting power allowance for retail display area. Excludes museum exhibition areas for additional lighting power allowance. Increases cost but not life cycle cost, and Decreases Energy Use. This is cost effective due to no net increase in life cycle cost.	Same as change between 2015 IECC and 2018 IECC	Decreases Energy Use	None
C405.4 Exterior lighting power requirements (Mandatory)	CE211-16	Modified code section C405.5. Added text “power requirement” to the title. Calculated lighting power allowance per section C405.5.1 shall not be greater than the value calculated per section C405.5.2. And deleted exceptions. No cost increase.	Same as change between 2015 IECC and 2018 IECC	None	None
C405.4.1 Total connected exterior building exterior lighting power		Modified code section C405.5.1. Deleted the text “Exterior” and added text “Total connected” to the title. Modified the definition of the total connected power. Also added exceptions to the total connected power calculations. No cost increase.	Same as change between 2015 IECC and 2018 IECC	None	None
C405.4.2 Exterior lighting power allowance		Added new code section C405.4.2. This new section clarifies how the exterior lighting power allowance is calculated. No cost increase.	Same as change between 2015 IECC and 2018 IECC	None	None

Table A: Commercial Code Change Summary for 6th Edition (2017) Florida Energy Code vs. 2018 IECC (continued)

2018 IECC Section and Title	ICC Code Change No	Change Summary b/t 2015 IECC and 2018 IECC	Change Summary b/t 2017 FEC and 2018 IECC	Anticipated Energy Impact on FEC if Adopted*	Anticipated Cost Impact on FEC if Adopted*
Table C405.4.2(2) LIGHTING POWER ALLOWANCES FOR BUILDING EXTERIORS	CE211-16	Edited Table C405.5.2.(2). Deleted “Individual” from the title and moved the non-tradable surface section to create a new Table C405.4.2(3). This change was made for clarity. No cost increase.	Same as change between 2015 IECC and 2018 IECC	None	None
Table C405.4.2(3) Exterior lighting power allowance		Added a new Table C405.5.2(3) for clarity. Created a new table for non-tradeable surfaces from Table C405.5.2(2). No cost increase.	Same as change between 2015 IECC and 2018 IECC	None	None
C405.4.2.1 Additional exterior lighting power		Added new code section C405.4.2.1 for clarity. Additional exterior lighting power allowance is limited to applications listed in the new Table C405.4.2(3). No cost increase.	Same as change between 2015 IECC and 2018 IECC	None	None
C405.4.1 Total connected exterior building exterior lighting power	CE212-16	Modified code section C405.5.1. Deleted item 9 and added new items 9-11 in the exceptions to make IECC-2018 consistent with ASHRAE 90.1-2016. No cost increase.	Same as change between 2015 IECC and 2018 IECC	None	None
C405.4.3 Gas lighting (Mandatory)	CE213-16	Added new code section C405.4.3. Gas-fired lighting appliances shall not have continuously burning pilot ignition systems. Increases first cost slightly but has significant energy saving.	Same as change between 2015 IECC and 2018 IECC	Decreases Energy Use	Increases cost
Table C405.4.2(2) LIGHTING POWER ALLOWANCES FOR BUILDING EXTERIORS	CE215-16	Modified Table C405.5.2(2). Reduced the exterior lighting power allowance values for tradable exterior building surfaces and modified the table format. No cost increase.	Same as change between 2015 IECC and 2018 IECC	Decreases Energy Use	None
Table C405.4.2(3) INDIVIDUAL LIGHTING POWER ALLOWANCES FOR BUILDING EXTERIORS		Modified Table C405.5.2(2). Reduced the exterior lighting power allowance values for non-tradable exterior building surfaces and modified the table format. No cost increase.	Same as change between 2015 IECC and 2018 IECC	Decreases Energy Use	None
C405.6 Electrical transformers (Mandatory)	CE220-16	Modified code section C405.7. Replaced text “Electric” with “Low-voltage dry-type distribution” for consistency with Table C405.7. No cost increase.	Same as change between 2015 IECC and 2018 IECC	None	None

Table A: Commercial Code Change Summary for 6th Edition (2017) Florida Energy Code vs. 2018 IECC (continued)

2018 IECC Section and Title	ICC Code Change No	Change Summary b/t 2015 IECC and 2018 IECC	Change Summary b/t 2017 FEC and 2018 IECC	Anticipated Energy Impact on FEC if Adopted*	Anticipated Cost Impact on FEC if Adopted*
Table C405.6 MINIMUM NOMINAL EFFICIENCY LEVELS FOR 10 CFR 431 LOW-VOLTAGE DRY-TYPE DISTRIBUTION TRANSFORMERS	CE221-16	Modified Table C405.7. Added a decimal point to minimum efficiency values for single-phase transformers and increased baseline minimum efficiency values of three-phase transformers due to change in US federal energy efficiency standard. No cost increase but Decreases Energy Use due to efficiency increase.	Same as change between 2015 IECC and 2018 IECC	Decreases Energy Use	None
[General Definitions] C202 GENERAL PURPOSE ELECTRIC MOTOR (SUBTYPE II)	CE223-16	Deleted general definition of GENERAL PURPOSE ELECTRIC MOTOR (SUBTYPE II) without substitution. No cost increase.	Same as change between 2015 IECC and 2018 IECC	None	None
[General Definitions] C202 GENERAL PURPOSE ELECTRIC MOTOR (SUBTYPE I)		Deleted general definition GENERAL PURPOSE ELECTRIC MOTOR (SUBTYPE I) without substitution. No cost increase.	Same as change between 2015 IECC and 2018 IECC	None	None
[General Definitions] C202 IEC DESIGN H MOTOR		Added new general definition for IEC DESIGN H MOTOR. No cost increase.	Same as change between 2015 IECC and 2018 IECC	None	None
[General Definitions] C202 IEC DESIGN N MOTOR		Added new general definition for IEC DESIGN N MOTOR. No cost increase.	Same as change between 2015 IECC and 2018 IECC	None	None
[General Definitions] C202 NEMA DESIGN A MOTOR		Added new general definition for NEMA DESIGN A MOTOR. No cost increase.	Same as change between 2015 IECC and 2018 IECC	None	None
[General Definitions] C202 NEMA DESIGN B MOTOR		Added new general definition for NEMA DESIGN B MOTOR. No cost increase.	Same as change between 2015 IECC and 2018 IECC	None	None
[General Definitions] C202 NEMA DESIGN C MOTOR		Added new general definition for NEMA DESIGN C MOTOR. No cost increase.	Same as change between 2015 IECC and 2018 IECC	None	None

Table A: Commercial Code Change Summary for 6th Edition (2017) Florida Energy Code vs. 2018 IECC (continued)

2018 IECC Section and Title	ICC Code Change No	Change Summary b/t 2015 IECC and 2018 IECC	Change Summary b/t 2017 FEC and 2018 IECC	Anticipated Energy Impact on FEC if Adopted*	Anticipated Cost Impact on FEC if Adopted*
C405.7 Electrical motors (Mandatory)	CE223-16	Modified code section C405.8. Added new exceptions for electric motors from minimum efficiency requirements. No cost increase.	Same as change between 2015 IECC and 2018 IECC	Decreases Energy Use	None
Table C405.7(1) MINIMUM NOMINAL FULL-LOAD EFFICIENCY FOR NEMA DESIGN A, NEMA DESIGN B, AND IEC DESIGN N MOTORS (EXCLUDING FIRE PUMP ELECTRIC MOTORS AT 60 HZ)		Modified Table C405.8(1). Modified table format and increased electric motors minimum efficiency requirements due to new US federal minimum motor efficiency change and added new footnotes to this table for clarification. Increases cost but also decreases energy use compared to the previous minimum efficiency. Cost effective with payback period of 2.9 – 4.5 years.	Same as change between 2015 IECC and 2018 IECC	Decreases Energy Use	Increases cost
Table C405.7(2) MINIMUM NOMINAL FULL-LOAD EFFICIENCY FOR NEMA DESIGN C AND IEC DESIGN H MOTORS AT 60 HZ		Modified Table C405.8(2). Modified table format and increased electric motors minimum efficiency requirements due to new US federal minimum motor efficiency change and added new footnotes to this table for clarification. Cost effective with payback period of 2.9 – 4.5 years.	Same as change between 2015 IECC and 2018 IECC	Decreases Energy Use	Increases cost
C405.8.2 Escalators and moving walks	CE224-16 (CE209-16)	Modified code section C405.9.2. Added exception as an alternative to speed reduction automatic control when there is light load. No cost increase, in some cases may reduce first cost and provide design flexibility.	Same as change between 2015 IECC and 2018 IECC	None	None
[General Definitions] C202 VOLTAGE DROP	CE226-16	Added new general definition for VOLTAGE DROP. No cost increase.	Same as change between 2015 IECC and 2018 IECC	None	None
C405.9 Voltage drop in feeders and branch circuits		Added new code section C405.9. Added to limit voltage drop allowed to 5% to be consistent with ASHRAE 90.1-2016 requirement. Increases cost.	FEC already has this code requirement in section C405.6.3 Voltage drop. No cost effect on FEC.	None	None

Table A: Commercial Code Change Summary for 6th Edition (2017) Florida Energy Code vs. 2018 IECC (continued)

2018 IECC Section and Title	ICC Code Change No	Change Summary b/t 2015 IECC and 2018 IECC	Change Summary b/t 2017 FEC and 2018 IECC	Anticipated Energy Impact on FEC if Adopted*	Anticipated Cost Impact on FEC if Adopted*
C406.1 Requirements	CE230-16	Modified code section C406.1. Added two more compliance alternatives for Efficiency Packages. No cost increase, may even reduce first cost due to design flexibility.	Same as change between 2015 IECC and 2018 IECC	Decreases Energy Use	None
C406.8 Enhanced envelope performance		Added new code section C406.8. Total UA design value shall be not less than 15% below the total UA value per section C402.1.5. No cost increase.	Same as change between 2015 IECC and 2018 IECC	Decreases Energy Use	None
C406.9 Reduced air infiltration		Added new code section C406.9. Whole building pressure test is required and measured air leakage of the building envelope shall be less than 0.25 cfm/ft ² under a pressure difference of 0.3 in (75 Pa). Exception applies if the conditioned floor area is greater than 250,000 ft ² . No cost increase.	Same as change between 2015 IECC and 2018 IECC	Decreases Energy Use	None
C406.1.1 Tenant spaces	CE235-16	Modified code section C406.1.1. Added exception for previously occupied spaces in accordance with section C501. No cost increase.	Same as change between 2015 IECC and 2018 IECC	None	None
C406.5 On-site renewable energy	CE242-16	Edited code section C406.5 for clarification. Added threshold for equipment rated capacity in IP units. No cost increase.	Same as change between 2015 IECC and 2018 IECC	None	None
C406.7.1 Load fraction	CE246-16	Edited code section C406.7.1 for clarification of the original intent. Added text “the building’s annual”, deleted text “a combined heat and power system” and replaced “Solar” with “On site renewable energy”. No cost increase.	Same as change between 2015 IECC and 2018 IECC	None	None
C407.1 Scope	CE248-16 Part I	Modified code section C407.1. Added exception for clarification. Energy used to recharge or refuel vehicles used for transportation shall not be included in building energy performance calculation. No cost increase.	Same as change between 2015 IECC and 2018 IECC	None	None

Table A: Commercial Code Change Summary for 6th Edition (2017) Florida Energy Code vs. 2018 IECC (continued)

2018 IECC Section and Title	ICC Code Change No	Change Summary b/t 2015 IECC and 2018 IECC	Change Summary b/t 2017 FEC and 2018 IECC	Anticipated Energy Impact on FEC if Adopted*	Anticipated Cost Impact on FEC if Adopted*
C407.3 Performance-based compliance	CE250-16	Edited code section C407.3. Replaced the text “nondepletable” with “on-site renewable energy”. Also added new text that renewable energy purchased from off-site sources shall be the same in the standard reference and the proposed design building. No cost increase.	Same as change between 2015 IECC and 2018 IECC	None	None
C407.3 Performance-based compliance	CE251-16	Modified code section C407.3. The reduction in energy cost of the proposed design associated with on-site renewable energy shall be not more than 5% of the total energy cost. Also requires that renewable energy purchased from off-site sources shall be the same in the standard reference and the proposed design. No cost increase.	Same as change between 2015 IECC and 2018 IECC	None	None
C407.4.2 Additional documentation		Modified code section C407.4.2. Added new item 6, code official is permitted to request documentation on the reduction of energy use associated with on-site renewable energy. No cost increase.	Same as change between 2015 IECC and 2018 IECC. This change will be item 5 for FBC.	None	None
TABLE C407.5.1(1) SPECIFICATIONS FOR THE STANDARD REFERENCE AND PROPOSED DESIGNS	CE256-16	Modified TABLE C407.5.1(1). Added exceptions to the schedules of <i>Standard Reference Design</i> thermostat and HVAC operation for radiant cooling or heating and elevated air speed application. No cost increase.	Same as change between 2015 IECC and 2018 IECC	None	None
TABLE C407.5.1(1) SPECIFICATIONS FOR THE STANDARD REFERENCE AND PROPOSED DESIGNS	CE259-16 Part I	Edited TABLE C407.5.1(1). Editorial changes to vertical fenestration other than opaque, doors and skylight sections of <i>Standard Reference Design</i> for clarification. No cost increase.	FEC already has incorporated these editorial code changes.	None	None

Table A: Commercial Code Change Summary for 6th Edition (2017) Florida Energy Code vs. 2018 IECC (continued)

2018 IECC Section and Title	ICC Code Change No	Change Summary b/t 2015 IECC and 2018 IECC	Change Summary b/t 2017 FEC and 2018 IECC	Anticipated Energy Impact on FEC if Adopted*	Anticipated Cost Impact on FEC if Adopted*
C408.1 General	CE260-16	Modified code section C408.1. Added text “service water heating systems in section C404” for clarification. No cost increase.	Same as change between 2015 IECC and 2018 IECC	None	None
C408.2.4 Preliminary commissioning report	CE265-16	Modified code section C408.2.4. Added a text that cross-references a new Commissioning Compliance Checklist Figure C408.2.4. No cost increase.	Same as change between 2015 IECC and 2018 IECC	None	None
TABLE C408.2.4.1 COMMISSIONING COMPLIANCE CHECKLIST		Added new checklist Figure C408.2.4. Added Commissioning Compliance Checklist that assists final inspection in the field. No cost increase.	Same as change between 2015 IECC and 2018 IECC	None	None
C408.2.4 Preliminary commissioning report	CE266-16	Modified code section C408.2.4. Added two new requirement items 4 and 5 (functional performance tests and testing procedure reports). No cost increase.	Same as change between 2015 IECC and 2018 IECC	None	None
C103.6 Building documentation and closeout submittal requirements	CE268-16	Added new code section C103.6. Added documentation and closeout submittal requirements. No cost increase.	Same as change between 2015 IECC and 2018 IECC	None	None
C103.6.1 Record documents		Added new code section C103.6.1. Construction documents shall be updated to convey a record of the completed work. No cost increase.	Same as change between 2015 IECC and 2018 IECC	None	None
C103.6.2 Compliance documentation		Added new code section C103.6.2. All energy code compliance documentation and supporting calculations shall be delivered in one document to the building owner. No cost increase.	Same as change between 2015 IECC and 2018 IECC	None	None
C103.6.3 Systems operation control		Added new code section C103.6.3. Describes training requirements to those responsible maintaining equipment and training manual requirements. No cost increase.	Same as change between 2015 IECC and 2018 IECC	None	None
None		Delete code section C408.2.5.1 without substitution. No cost increase.	Same as change between 2015 IECC and 2018 IECC	None	None

Table A: Commercial Code Change Summary for 6th Edition (2017) Florida Energy Code vs. 2018 IECC (continued)

2018 IECC Section and Title	ICC Code Change No	Change Summary b/t 2015 IECC and 2018 IECC	Change Summary b/t 2017 FEC and 2018 IECC	Anticipated Energy Impact on FEC if Adopted*	Anticipated Cost Impact on FEC if Adopted*
None	CE268-16	Delete code section C408.2.5.2 without substitution. No cost increase.	Same as change between 2015 IECC and 2018 IECC	None	None
C408.2.5.1 System balancing report		Edited code section C408.2.5.3. Changed section number to C408.2.5.1. No cost increase.	Same as change between 2015 IECC and 2018 IECC	None	None
C408.2.5.2 Final commissioning report		Edited code section C408.2.5.4. Changed section number to C408.2.5.2. No cost increase.	Same as change between 2015 IECC and 2018 IECC	None	None
C501.4 Compliance	CE274-16 Part I	Edited code section C501.4. Added missing text “this code” and “International Existing Building Code” for clarification. No cost increase.	Same as change between 2015 IECC and 2018 IECC	None	None
C502.1 General	CE276-16	Edited code section C502.1. Added text “Sections C402, C403, C404, C405” for clarification. No cost increase.	Same as change between 2015 IECC and 2018 IECC	None	None
C503.1 General		Edited code section C503.1. Added text “Section C503” for clarification. No cost increase.	Same as change between 2015 IECC and 2018 IECC	None	None
C503.1 General	CE279-16	Modified code section C503.1. Deleted exception item 7. No cost increase.	Same as change between 2015 IECC and 2018 IECC	None	None
C503.2 Change in space conditioning	CE285-16	Modified code section C503.2. Added exception items 1 and 2 for component performance alternative method. Decreases cost by providing cost effective design alternative.	Same as change between 2015 IECC and 2018 IECC	None	Decrease cost
C505.1 Change in space conditioning		Modified code section C505.1. Added exceptions 1 and 2 for component performance alternative and total building performance methods, respectively. These exceptions are less stringent and providing design flexibility. May reduce construction cost.	Same as change between 2015 IECC and 2018 IECC	None	Decrease cost
C503.3 Building envelope	CE286-16	Modified code section C503.3. Added exception on fenestration area limitation for fenestration alteration in existing buildings. Decreases cost by providing cost effective design alternative.	Same as change between 2015 IECC and 2018 IECC	None	None

Table A: Commercial Code Change Summary for 6th Edition (2017) Florida Energy Code vs. 2018 IECC (continued)

2018 IECC Section and Title	ICC Code Change No	Change Summary b/t 2015 IECC and 2018 IECC	Change Summary b/t 2017 FEC and 2018 IECC	Anticipated Energy Impact on FEC if Adopted*	Anticipated Cost Impact on FEC if Adopted*
C503.3.2 Vertical fenestration	CE286-16	Modified code section C503.3.2. Updated cross-referenced code sections. Added design alternative as an option for fenestration replacement during alteration when the fenestration area remains the same. Decreases cost by providing cost effective design alternative for existing building.	Same as change between 2015 IECC and 2018 IECC	None	None
C503.3.3 Skylight area		Modified code section C503.3.3. Added design alternative as an option for skylight replacement during alteration when the skylight area remains the same. Decreases cost by providing cost effective design alternative for existing building.	Same as change between 2015 IECC and 2018 IECC	None	None
C505.1 General		Modified code section C505.1. Added design alternative as an exception for a space undergoing occupancy change or use in a building with fenestration area exceeding the limitation of C402.4.1 provided the fenestration area remains the same. Decreases cost by providing cost effective design alternative for existing building.	Same as change between 2015 IECC and 2018 IECC	None	None

Table A: Commercial Code Change Summary for 6th Edition (2017) Florida Energy Code vs. 2018 IECC (continued)

2018 IECC Section and Title	ICC Code Change No	Change Summary b/t 2015 IECC and 2018 IECC	Change Summary b/t 2017 FEC and 2018 IECC	Anticipated Energy Impact on FEC if Adopted*	Anticipated Cost Impact on FEC if Adopted*
APPENDIX AC: SOLAR READY ZONE - COMMERCIAL					
CA101.1 General	CE294-16	Added new code section CA101.1. Non-mandatory.	Same as change between 2015 IECC and 2018 IECC	None	None
CA102 GENERAL DEFINITIONS		Added new definition for SOLAR READY ZONE. Non-mandatory.	Same as change between 2015 IECC and 2018 IECC	None	None
CA103.1 General		Added new code section CA103.1. Non-mandatory.	Same as change between 2015 IECC and 2018 IECC	None	None
CA103.2 Construction document requirements for solar ready zone		Added new code section CA103.2. Non-mandatory. Increases cost.	Same as change between 2015 IECC and 2018 IECC	None	Increases cost
CA103.3 Solar ready zone area		Added new code section CA103.3. Non-mandatory. Increases cost.	Same as change between 2015 IECC and 2018 IECC	None	Increases cost
CA103.4 Obstruction		Added new code section CA103.4. Non-mandatory.	Same as change between 2015 IECC and 2018 IECC	None	None
CA103.5 Roof loads and documentation		Added new code section CA103.5. Non-mandatory. Increases cost.	Same as change between 2015 IECC and 2018 IECC	None	Increases cost
CA103.6 Interconnection pathway		Added new code section CA103.6. Non-mandatory. Increases cost.	Same as change between 2015 IECC and 2018 IECC	None	Increases cost
CA103.7 Electrical service reserved space		Added new code section CA103.7. Non-mandatory. Increases cost.	Same as change between 2015 IECC and 2018 IECC	None	Increases cost
CA103.8 Construction documentation certificate		Added new code section CA103.8. Non-mandatory. Increases cost.	Same as change between 2015 IECC and 2018 IECC	None	Increases cost

* FSEC assessment of energy and cost impacts is consistent with those in 2018 IECC-Codes Revision History unless otherwise noted

Appendix B: ASHRAE Standard 90.1-2016 Code Change Review Summary

Department of Energy (DOE) provides a qualitative and quantitative analysis of impacts of code changes for every code development cycle. The qualitative analysis determines code change addenda applicable to prescriptive and performance code compliance methods that has direct impact on energy use. Furthermore, the qualitative analysis identifies which of the code changes result in an increase or decrease in energy use. This section is summary of the qualitative analysis extracted from the Energy Savings Analysis report for ASHRAE Standard 90.1-2016 (US DOE, 2017).

Summary of code changes addenda included in ASHRAE Standard 90.1-2016 are provided in Table 1. This table summarizes the number of codes changes for each of the various sections of the code and the number of addenda items that directly impact building energy use.

Table 1. Number of code changes addenda in ASHRAE Standard 90.1 - 2016

Section	Number of Addenda	Number of Addenda with Energy Impact
5. Building Envelope	19	9
6. Heating Ventilation and Air Conditioning	43	26
7. Service Water Heating	4	1
8. Power	2	1
9. Lighting	18	11
10. Other Equipment	3	1
11. Appendices C and G	29	1
12. Normative References	1	1
Various	2	0
Total	121	51

There are 121 code changes addenda included in ASHRAE Standard 90.1 – 2016. Of the 121 code changes addenda, 51 addenda items were identified to have impacts on energy use. And 21 out of the 51 addenda items were identified suitable for the quantitative analysis using simulations (US DOE, 2017). Summary of code change addenda that have energy impacts are provided in Table B. The 21 addenda items will be quantitatively analyzed to determine the ASHRAE 90.1-2016 code energy impact on the state of Florida.

References:

US DOE 2017. Energy Savings Analysis: ANSI/ASHRAE/IES Standard 90.1-2016. US Department of Energy. Office Energy Efficiency and Renewable Energy. Report. October 2017. https://www.energycodes.gov/sites/default/files/documents/02222018_Standard_90.1-2016_Determination_TSD.pdf. Accessed February, 2018.

Table B Commercial Code Change Summary for ASHRAE 90.1- 2016

Addendum	Code Sections Affected	Code Change Summary Between ASHRAE 90.1-2013 and ASHRAE 90.1-2016	Impact on Energy Use	Included in quantitative Analysis	Discussion
a	3.2, 5.1.2.1	Modifies the definition of conditioned space and modifies the heated space criteria table	Decreases Energy Use	No	Lowers the threshold for spaces to be considered heated resulting in a requirement for additional insulation. Excluded from quantitative analysis because the prototype space classifications are held constant from one edition of the standard to the next.
d	6.3.2, 6.4.3.3	Requires deeper thermostat setback for networked guestrooms or those unoccupied for more than 16 Hours/day. Also requires ventilation to be turned off when guestrooms are unoccupied.	Decreases Energy Use	Yes	Increases stringency of hotel/motel guest room control.
e	9.1.2	Increases requirements for alterations to existing building lighting systems.	Decreases Energy Use	No	Excluded from quantitative analysis because the analysis considers new construction only and this applies only to existing buildings.
f	9.4.1.1	Changes an exception to the automatic daylight control requirements for daylight areas under skylights from visible transmittance to effective aperture.	Decreases Energy Use	No	Changes an exception that increases stringency. Excluded from quantitative analysis because typical designs as represented by the prototypes do not qualify for the exception.
i	6.5.1	Eliminates separate cooling capacity thresholds for requiring an economizer in computer rooms. Computer rooms will be required to follow the same thresholds as comfort cooling applications.	Decreases Energy Use	Yes	Smaller computer rooms will now need economizers.
j	6.5.3.3	Requires variable air volume (VAV) system ventilation optimization even when energy recovery ventilator (ERV) is installed.	Decreases Energy Use	Yes	Removes the ventilation optimization exception for ERV, making the requirement more stringent.
l	4.2.4, 4.2.5, 5.2.1, 5.2.9 (new section)	Adds verification requirements for envelope components, including insulation, fenestration, doors, and air leakage.	Decreases Energy Use	No	Excluded from quantitative analysis because the analysis does not take credit for verification or commissioning.

Table B Commercial Code Change Summary for ASHRAE 90.1- 2016 (continued)

Addendum	Code Sections Affected	Code Change Summary Between ASHRAE 90.1-2013 and ASHRAE 90.1-2016	Impact on Energy Use	Included in quantitative Analysis	Discussion
n	Tables 6.8.1-9, 6.8.1-10	Modifies integrated energy efficiency ratio (IEER) values for air-cooled variable refrigerant flow (VRF) air conditioners and heat pumps above 65,000 Btu/h. The new IEERs are between 15% and 20% more stringent.	Decreases Energy Use	No	Excluded from quantitative analysis because typical designs, as represented by the established prototypes, do not include VRF systems.
q	Table 6.5.3.1-2	Allows only the following systems to use the fan power allowance for fully ducted return and/or exhaust systems: (1) systems required to be fully ducted by code or accredited standards; (2) systems required to maintain air pressure differentials between adjacent rooms.	Decreases Energy Use	No	Reduces fan energy through improved efficiency in other components in designs that utilize ducted return or exhaust by choice. Excluded from quantitative analysis because typical designs as represented by prototypes do not utilize this extra return or exhaust duct credit.
s	6.5.2.1	Relieves parallel fan powered box and dedicated outdoor air system (DOAS) with direct digital control (DDC) from requirements c & d in exception 2 of Section 6.5.2.1.	Decreases Energy Use	No	Increases energy use because it allows some designs to avoid a requirement for two stages of heating. Excluded from quantitative analysis because typical designs as represented by the prototypes do not include perimeter heating or parallel fan-powered terminal units.
u	6.5.7	Applies transfer air requirements more broadly than to just kitchen exhaust systems, and clarifies the sources of transfer air.	Decreases Energy Use	Yes	Makes transfer air requirements more stringent.
v	5.5.4.5	Deletes exception 2 of the fenestration orientation requirement for obstructions to south-facing glazing.	Decreases Energy Use	No	Deletes the exception increasing stringency. Excluded from quantitative analysis because obstructions are not modeled in the prototypes.
w	Multiple, Chapters 3, 4, 5, 6, 9, 12, Appendices A, B, D, E, G, Reference Standard Reproduction Annex (new)	Refers 90.1 to new climatic data based on Standard 169-2013 resulting in changes to climate zone assignments for some locations, the creation of a new climate zone 0, and the addition of criteria for climate zone 0. Adds method for rating the solar reflectance index of walls with glass spandrel area and adjusts criteria for minimum skylight area in climate zone 0.	Increases Energy Use	Yes	This change indirectly affects how climate zones are defined and applied through Standard 90.1. For example, the recent update shifted a relatively small number of locations to warmer climate zones where they were typically subject to less stringent requirements, therefore increasing energy use in those instances. Impacts some counties in south Florida.

Table B Commercial Code Change Summary for ASHRAE 90.1- 2016 (continued)

Addendum	Code Sections Affected	Code Change Summary Between ASHRAE 90.1-2013 and ASHRAE 90.1-2016	Impact on Energy Use	Included in quantitative Analysis	Discussion
ac	A9.4	Allows the use of the R-value of an airspace in enclosed cavities with or without insulation (Appendix A). Expands the R-value table in Appendix A (based on Chapter 26 of the 2009 Handbook of Fundamentals).	Decreases Energy Use	No	Sets criteria limiting when the R-value of air spaces may be included in calculations. Excluded from quantitative analysis because it did not change opaque envelope U-factors if assemblies modeled in the prototypes.
ag	6.4.3.9	Limits mechanical cooling to 85°F for vestibules, except when the vestibule is tempered with transfer air or heated with recovered energy.	Decreases Energy Use	No	Limits cooling setpoint in vestibules. Excluded from quantitative analysis because typical designs as represented by the prototypes do not include vestibules with cooling.
ah	9.4.1.1	Clarifies that all lighting, including egress lighting on emergency circuits, shall be turned off when the space is unoccupied with 0.02 W/sf in exception.	Decreases Energy Use	Yes	Increases application of controls for emergency lighting.
ai	5.5.4.1, Tables 5.5-0 through 5.5-8	Prescribes lower solar heat gain coefficient (SHGC) for vertical fenestration in climate zone 0 and lower U-factors for vertical fenestration in climate zones 4 through 8.	Decreases Energy Use	Yes	Requires more stringent window U-factor and SHGC.
aj	6.5.3.2.1, 6.5.3.2.4	Requires return and relief fans larger than 0.5 hp to have variable frequency drive (VFD) control, to maintain building pressure, and to avoid disabling of economizer operation.	Decreases Energy Use	No	Ensures proper pressurization that allows economizers to function more efficiently. Excluded from quantitative analysis because return and relief fans are not explicitly modeled in the prototypes.
ak	6.5.4.1, 6.5.4.3	Addresses a number of issues with hydronic section (6.5.4.1) including removal of the pump power threshold, limiting Section 6.5.4.1 to heating and cooling hydronic systems only, lowering the flow limit exception, and other changes.	Decreases Energy Use	No	Increases application of variable flow hydronic systems and reduces the required minimum flow. Excluded from quantitative analysis because the requirement is standard practice that was already assumed in the prototypes.
al	5.4.3.2	Prescribes air leakage criteria for metal coiling doors in semi-heated spaces.	Decreases Energy Use	Yes	Adds coiling door air leakage requirements.

Table B Commercial Code Change Summary for ASHRAE 90.1- 2016 (continued)

Addendum	Code Sections Affected	Code Change Summary Between ASHRAE 90.1-2013 and ASHRAE 90.1-2016	Impact on Energy Use	Included in quantitative Analysis	Discussion
am	9.4.1.2	Increases the parking garage lighting reduction from 30% to 50% in response to no occupancy, specifies a 50% reduction in lighting power in response to the presence of daylighting, and removes a duplicate exception.	Decreases Energy Use	No	Excluded from quantitative analysis because the prototypes do not include parking garages.
as	9.4.1.4	Requires luminaires in parking areas with input power greater than 78W and mounting height less than 24 ft to reduce power by 50% in response to occupancy.	Decreases Energy Use	Yes	Adds parking lot occupancy controls, thereby reducing parking lot lighting use.
aw	6.5.61	Clarifies and limits the exceptions to exhaust air energy recovery requirements (6.5.6.1).	Decreases Energy Use	No	Excluded from quantitative analysis because the exceptions are not used by typical designs as represented by the prototypes.
ay	5.4.3.1.3	Allows non-adhered single-ply roof membranes to qualify as an air barrier material.	Increases Energy Use	No	Increases energy use because it potentially increases heat loss through fluttering. Excluded from quantitative analysis because single-ply non-adhered roofing membranes are not included in the prototypes.
bc	Tables 5.5.0 through 5.5.8	Lowers U-factor criteria for doors.	Decreases Energy Use	Yes	
bi	6.5.2.6	Limits ventilation air heating (DOAS systems).	Decreases Energy Use	No	Limits simultaneous heating and cooling. Excluded from quantitative analysis because the DOAS system in the Large Hotel prototype already meets this requirement.
bj	6.5.4.7	Establishes minimum chilled water coil selection delta T.	Decreases Energy Use	Yes	Reduces pumping energy.
bk	6.5.3.4	Specifies control of fans in fan powered parallel VAV boxes	Decreases Energy Use	No	Includes several control strategies that reduce energy use in fan powered terminal units. Excluded from quantitative analysis because typical design as represented by the prototypes does not employ parallel fan-powered terminal units.

Table B Commercial Code Change Summary for ASHRAE 90.1- 2016 (continued)

Addendum	Code Sections Affected	Code Change Summary Between ASHRAE 90.1-2013 and ASHRAE 90.1-2016	Impact on Energy Use	Included in quantitative Analysis	Discussion
bn	6.3.2, 6.5.3.6	Sets maximum outdoor air ventilation design requirements for heat recovery.	Decreases Energy Use	No	Limits outdoor air ventilation, or requires mitigation to make up for increased ventilation. Excluded from quantitative analysis because prototype OA is set at ASHRAE Standard 62.1 limits and is already below the maximum.
bs	Table 6.8.1-10	Increases water-cooled VRF efficiencies.	Decreases Energy Use	No	Excluded from quantitative analysis because typical designs as represented by the prototypes do not include VRF systems.
bt	Table 8.4.4	Updates transformer efficiency requirements.	Decreases Energy Use	No	Excluded from quantitative analysis because transformers are a federally-regulated product.
by	7.4.3	Requires insulation of the first 8 ft of branch piping from recirculating SWH systems.	Decreases Energy Use	Yes	Reduces heat loss from SWH branch piping.
ca	6.5.2.2.1	Reduces the threshold for variable flow heat rejection device fans from 7.5 to 5 hp. Eliminates the exception for climate zones 1 and 2.	Decreases Energy Use	Yes	
cb	6.4.4.1.2, Tables 6.8.2-1, 6.8.2-2, 6.8.2	Increases ductwork insulation requirements.	Decreases Energy Use	No	Increases required duct insulation. Excluded from quantitative analysis because duct heat loss is not accounted for in the prototypes.
ce	Tables 6.5.6.1-1 and 6.5.6.1-2	Raises minimum threshold for energy recovery.	Decreases Energy Use	Yes	Raises minimum exhaust air energy recovery threshold.
cf	6.1.1.3.1	Requires replacement HVACR equipment to meet most Section 6 requirements.	Decreases Energy Use	No	Requires replacement equipment to be more energy-efficient. Excluded from quantitative analysis because analysis considers new construction only.
cg	9.4.2	Reduces exterior lighting power allowances.	Decreases Energy Use	Yes	
ch	Tables 9.5.1 and 9.6.1	Reduces interior lighting power allowances.	Decreases Energy Use	Yes	

Table B Commercial Code Change Summary for ASHRAE 90.1- 2016 (continued)

Addendum	Code Sections Affected	Code Change Summary Between ASHRAE 90.1-2013 and ASHRAE 90.1-2016	Impact on Energy Use	Included in quantitative Analysis	Discussion
ci	5.5.4.5	Modifies fenestration orientation requirements.	Decreases Energy Use	Yes	Increases stringency of fenestration orientation requirements.
cq	6.5.5.2.1	Bases variable speed thresholds for heat rejection fans on motor power, including service factor.	Decreases Energy Use	Yes	Includes service factor in the heat rejection VFD threshold, effectively lowering the threshold.
cv	3.2, 10.4.1, Tables 10.8.1, 10.8.2, and 10.8.3	Increases motor efficiencies.	Decreases Energy Use	No	Excluded from quantitative analysis because motors are a federally regulated product not captured in determination.
cy	3.2, 6.4.1.1, Table 6.8.1-14	Adds definition for indoor pool dehumidifier and moisture removal efficiency. Adds new table with efficiency requirements and rating conditions.	Decreases Energy Use	No	Adds new requirements for pool dehumidifiers. Excluded from quantitative analysis because typical designs as represented by the prototypes do not include indoor pools.
dd	6.5.4.2, Table 6.5.4.2	Reduces the threshold for variable flow pumping requirements for chilled water pumps and adds requirement for heating water pumps.	Decreases Energy Use	Yes	
dg	5.4.3.2	Establishes leakage requirements for glazed, power-operated sliding and folding doors. Provides default U-factors for unlabeled metal coiling and other metal non-swinging doors.	Increases Energy Use	No	Allows higher air leakage for glazed, power-sliding and folding doors. Excluded from quantitative analysis because typical designs as represented by the prototypes do not include these doors.
dk	TABLE 6.8.1-7	Increases the minimum efficiency for axial fan closed circuit cooling towers.	Decreases Energy Use	No	Excluded from quantitative analysis because closed circuit cooling towers are not included in the prototypes.
do	9.4.1	Adds efficacy requirements for lighting installed in dwelling units.	Decreases Energy Use	Yes	Requires high efficiency dwelling unit lighting.
dp	9.4.1.1	Adds exception to restriction on automatic energizing of lighting for open office spaces.	Decreases Energy Use	No	Allowing the use of available advanced control systems that were previously not possible to install without the exception. Excluded from quantitative analysis because the exception is not used by typical designs as represented by the prototypes.

Table B Commercial Code Change Summary for ASHRAE 90.1- 2016 (continued)

Addendum	Code Sections Affected	Code Change Summary Between ASHRAE 90.1-2013 and ASHRAE 90.1-2016	Impact on Energy Use	Included in quantitative Analysis	Discussion
dq	9.6.2	Reduces retail display lighting adder.	Decreases Energy Use	Yes	
dr	3.2, 9.6.2	Reduces decorative lighting adder.	Decreases Energy Use	No	Excluded from quantitative analysis because the prototypes do not include decorative lighting.
du	6.5.1	Requires water-side economizers for chilled water systems including non-fan systems, such as radiant cooling or passive chilled beam systems.	Decreases Energy Use	No	Expands the application of economizers which reduces the reliance on mechanical cooling for more systems. Excluded from quantitative analysis because typical designs do not include radiant cooling or passive chilled beams.
el	6.3.2, 6.4.3, 6.4.3.12	Adds fault detection requirements for DX equipment with economizers.	Decreases Energy Use	No	Allows fault detection to notify operators that systems are malfunctioning. Excluded from quantitative analysis because the analysis does not take credit for verification or commissioning.

Appendix C: Residential 2018 IECC Changes Review Summary

Residential 2018 IECC changes with respect to the 2015 IECC and 2017 Florida Energy Code (FEC) are summarized in Table C. Sections of the ICC's *Complete Revision History to the 2018 I-Codes* document that contain the full code write-ups for these changes are included below in Table C. Table C contains six columns defined as follows:

2018 IECC Section and Title: The 2018 IECC code section number and title for the code change.

ICC Code Change No.: Proposed code change number in the ICC's *Complete Revision History to the 2018 I-Codes* document. This code change number is linked to its corresponding section in the abridged Revision History document below Table C.

Change Summary b/t 2015 IECC and 2018 IECC: Brief description of the code change between the 2015 IECC and 2018 IECC.

Change Summary b/t 2017 FEC and 2018 IECC: Brief description of the code change between the 2017 FEC and 2018 IECC.

Anticipated Energy Impact on FEC if Adopted: Anticipated energy use impact from the code change if it is adopted in the FEC. "None" means the code change has no or negligible anticipated impact on energy use.

Anticipated Cost Impact on FEC if Adopted: Anticipated construction cost impact from the code change if it is adopted in the FEC. "None" means the code change has no or negligible anticipated impact on construction cost.

References:

Complete Revision History to the 2018 I-Codes. 2017. International Code Council.

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Parker, D., J. Sonne, and J. Sherwin. 2002. *Comparative Evaluation of the Impact of Roofing Systems on Residential Cooling Energy Demand in Florida*. Proceedings of ACEEE 2002 Summer Study, American Council for an Energy Efficient Economy, Washington, DC.

Table C Residential Code Change Summary for 6th Edition (2017) Florida Energy Code vs. 2018 IECC

2018 IECC Section and Title	ICC Code Change No.	Change Summary b/t 2015 IECC and 2018 IECC	Change Summary b/t 2017 FEC and 2018 IECC	Anticipated Energy Impact on FEC if Adopted*	Anticipated Cost Impact on FEC if Adopted*
Chapter R1: Scope and Administration					
R101.1 Title	CCC2-16	Editorial change to title of code	Same as change between 2015 IECC and 2018 IECC	None	None
R101.4.1 Applicability	CE157-16 Part II	Editorial change to clarify residential vs. commercial code applicability for mixed residential and commercial use buildings	Same as change between 2015 IECC and 2018 IECC	None	None
R102.1 General	ADM58-16 Part III	Revises and clarifies language regarding code official authority and process to approve alternative materials, designs or methods of construction, and if approval is not granted, requires official to provide reason in writing	Same as change between 2015 IECC and 2018 IECC	None	None
R102.1 General	ADM60-16 Part III	Clarifies the process for evaluating and approving alternative materials, designs and methods of construction	Same as change between 2015 IECC and 2018 IECC	None	None
R104 [R107 in 2015 IECC] Inspections	CCC5-16 Part III	Editorial section renumbering change for consistency between codes	Same as change between 2015 IECC and 2018 IECC	None	None
R105.1 [R104.1 in 2015 IECC]	ADM82-16 Part III	Clarifies meaning of construction or work accessibility for inspection purposes	Same as change between 2015 IECC and 2018 IECC	None	None
Chapter R2: Definitions					
R202 Addition	ADM1-16 Part III	Adds increase in the number of stories to definition of “addition” to provide consistency between codes	Same as change between 2015 IECC and 2018 IECC	None	None

2018 IECC Section and Title	ICC Code Change No.	Change Summary b/t 2015 IECC and 2018 IECC	Change Summary b/t 2017 FEC and 2018 IECC	Anticipated Energy Impact on FEC if Adopted*	Anticipated Cost Impact on FEC if Adopted*
R202 Air Barrier	CE3-16 Part II	Clarifies definition of “air barrier”	2017 FEC has much more detailed definition of “air barrier” than 2018 IECC, also breaking definition out to address air distribution systems and building envelopes separately	None (since no difference in intent is perceived) unless adopting 2018 IECC definition with less specifics results in installation of less effective air barriers	None (since no difference in intent is perceived) unless adopting 2018 IECC definition with less specifics results in installation of lower cost air barriers
R202 Air-Impermeable Insulation	RE3-16	New definition to clarify meaning of “air-impermeable insulation”	Same as change between 2015 IECC and 2018 IECC	None	None
R202 Alteration	ADM2-16 Part III	Removes phrase “that requires a permit” from definition of “alteration” for two reasons, 1) the phrase is seen as not pertinent here and 2) to provide consistency between codes	Same as change between 2015 IECC and 2018 IECC	None	None
R202 Approved	ADM4-16 Part III	Revises definition of “approved” to just “Acceptable to the <i>code official</i> .” to provide consistency between codes	Same as change between 2015 IECC and 2018 IECC	None	None
R202 Approved Agency	ADM6-16 Part III	Adds engagement in “furnishing product certification” to definition of “approved agency”	Same as change between 2015 IECC and 2018 IECC	None	None
R202 Building Thermal Envelope	CE4-16 Part II	Clarifies definition of “building thermal envelope”	Same as change between 2015 IECC and 2018 IECC	None	None
[R202 C-Factor]**	N/A	“C-Factor” term deleted because no longer used in residential code text	Same as change between 2015 IECC and 2018 IECC	None	None
R202 Demand Recirculation Water System	CE174-16 Part II	Editorial revisions to definition of “demand recirculation water system” to make more technically correct	Same as change between 2015 IECC and 2018 IECC	None	None
R202 Fenestration	CE11-16 Part II	Editorial revisions that 1) relocate the definitions of “skylights” and “vertical fenestration” to under the	Largely the same as change between the 2015 and 2018 IECC, except 2017 FEC has	None unless adopting 2018 IECC definition with less skylight detail	None unless adopting 2018 IECC definition with less skylight detail

2018 IECC Section and Title	ICC Code Change No.	Change Summary b/t 2015 IECC and 2018 IECC	Change Summary b/t 2017 FEC and 2018 IECC	Anticipated Energy Impact on FEC if Adopted*	Anticipated Cost Impact on FEC if Adopted*
		definition of “fenestration” and 2) edit the definition of “vertical fenestration” to improve clarity and consistency between codes	additional detail regarding skylight glazing materials	results in energy impacts	results in cost impacts
[R202 F-Factor]	N/A	“F-Factor” term deleted because no longer used in residential code text	Same as change between 2015 IECC and 2018 IECC	None	None
R202 High-Efficacy Lamps	RE5-16	Revises definition of “high-efficacy lamps” to improve clarity (in part adds LEDs to definition)	Same as change between 2015 IECC and 2018 IECC	None	None
R202 Labeled	ADM16-16 Part III	Editorial revision to definition of “labeled” to improve clarity and consistency between codes	Same as change between 2015 IECC and 2018 IECC	None	None
R202 Opaque Door	RE8-16	New definition to clarify meaning of “opaque door” as being “a door that is not less than 50 percent opaque in surface area”	Same as change between 2015 IECC and 2018 IECC	May create some confusion and minor energy impact as Section R405.5.3.3 of the 2017 FEC starts out: “For doors that are opaque or where the glass is less than one-third of the area of the door...” which appears to imply that an opaque door is 100% opaque	May create some confusion and minor cost impact as Section R405.5.3.3 of the 2017 FEC starts out: “For doors that are opaque or where the glass is less than one-third of the area of the door...” which appears to imply that an opaque door is 100% opaque
R202 Roof Assembly	G14-16 Part III	Revises definition of “roof assembly” to improve clarity	Same as change between 2015 IECC and 2018 IECC	None	None
R202 Skylight	CE11-16 Part II	Definition of “skylight” relocated to under definition of “fenestration”	Same as change between 2015 IECC and 2018 IECC	None	None
R202 Vertical Fenestration	CE11-16 Part II	Definition of “vertical fenestration” relocated to under definition of “fenestration” and	Same as change between 2015 IECC and 2018 IECC	None	None

2018 IECC Section and Title	ICC Code Change No.	Change Summary b/t 2015 IECC and 2018 IECC	Change Summary b/t 2017 FEC and 2018 IECC	Anticipated Energy Impact on FEC if Adopted*	Anticipated Cost Impact on FEC if Adopted*
		edited to improve clarity and consistency between codes			
Chapter R3: General Requirements					
R303.1.1 Building thermal envelope insulation	CE26-16 Part II	Adds separate R-value labeling requirement for roof insulation installed above the roof deck	Same as change between 2015 IECC and 2018 IECC	None	None
Table R303.1.3(1) Default Glazed Window, Glass Door and Skylight U-Factors	CE30-16 Part II	Removes “Fenestration” and adds “Window, Glass Door and Skylight” to title of Default Glazed [Fenestration] U-Factors table to improve clarity	Same as change between 2015 IECC and 2018 IECC	None	None
Table R303.1.3(2) Default Opaque Door U-Factors	CE30-16 Part II	Adds “opaque” to title of Default Door U-Factors table to improve clarity	Same as change between 2015 IECC and 2018 IECC	None	None
Chapter R4: Residential Energy Efficiency					
R401.3 Certificate (Mandatory)	RE14-16	Revises who, in addition to the builder, can complete a mandatory efficiency certificate, removing “registered design professional” and adding “other approved party”	2017 FEC Section R401.3 stipulates an Energy Performance Level (EPL) display card be completed and signed by the builder; changing this section of the FEC to 2018 IECC language would require a change to Florida Statutes	Difficult to estimate impact on stringency without research, but anticipated to make FEC slightly less efficient	Difficult to estimate impact on cost without research, but anticipated to not change costs or slightly reduce them
R402.1 General (Prescriptive)	RE17-16	Adds exception to prescriptive thermal envelope requirements for log homes built in accordance with ICC-400	Same as change between 2015 IECC and 2018 IECC	Difficult to estimate impact on stringency without research, but overall impact in Florida’s climate anticipated to be small	Difficult to estimate impact on cost without research, but anticipated to not change costs significantly in Florida’s climate overall
Table R402.1.2, Table R402.1.4 and	CE84-16 Part II	Adds notes to Tables R402.1.2 and R402.1.4 to indicate code	Same as change between 2015 IECC and 2018 IECC	None	None

2018 IECC Section and Title	ICC Code Change No.	Change Summary b/t 2015 IECC and 2018 IECC	Change Summary b/t 2017 FEC and 2018 IECC	Anticipated Energy Impact on FEC if Adopted*	Anticipated Cost Impact on FEC if Adopted*
Section R402.2.5 Mass Walls		section that addresses prescriptive requirements for mass walls and slightly revises mass wall section wording			
Table R402.1.2	RE22-16	Moves additional prescriptive R-5 insulation requirement for heated slabs from the perimeter to under the slab	Same as change between 2015 IECC and 2018 IECC	Proponent states that adding R-5 insulation under a heated slab better aligns heated slab performance with the performance of unheated slabs; unlikely to apply to many Florida homes.	Would likely raise cost of compliance somewhat in applicable cases; unlikely to apply to many Florida homes.
Table R402.1.2 and Table R402.1.4	RE31-16	Decreases maximum prescriptive fenestration <i>U</i> -factors slightly for Climate Zones 3 through 8	Same as change between 2015 IECC and 2018 IECC	None	None
R402.2.2 Ceilings without attic spaces	RE40-16	Clarifies prescriptive R-Value requirements for ceilings without attic spaces, including specifying that in these cases, the full height of uncompressed insulation must extend over the top of the wall plates at the eaves	Same as change between 2015 IECC and 2018 IECC	None	None
R402.2.6 Steel-frame ceilings, walls and floors	CE65-16 Part II	Clarifies prescriptive steel-frame ceiling, wall and floor compliance requirements	Same as change between 2015 IECC and 2018 IECC	None	None
Table R402.2.6 Steel-Frame Ceiling, Wall and Floor Insulation <i>R</i> -values	RE53-16	Corrects conflicting prescriptive R-value requirements for 16" on center, steel-framed walls (replaces R-19 + 2.1 option with R-19 + 3.1 for R-13 wood frame equivalent)	Same as change between 2015 IECC and 2018 IECC	Will increase stringency of FEC slightly in applicable cases (note proponent's reason for modification indicates the deleted	Will increase cost of compliance with FEC slightly in applicable cases (note proponent's reason for modification indicates the deleted

2018 IECC Section and Title	ICC Code Change No.	Change Summary b/t 2015 IECC and 2018 IECC	Change Summary b/t 2017 FEC and 2018 IECC	Anticipated Energy Impact on FEC if Adopted*	Anticipated Cost Impact on FEC if Adopted*
		[It appears the 2018 IECC does not accurately reflect this mod (2018 IECC shows an "R-21+3.1" option while mod shows "R-19+3.1")]		lower R-value requirement was in error)	lower R-value requirement was in error)
Table R402.4.1.1 Air Barrier and Insulation Installation	RE64-16	Clarifies HVAC register boot sealing requirement	Same as change between 2015 IECC and 2018 IECC	None	None
Table R402.4.1.1 Air Barrier and Insulation Installation	RE65-16	Clarifies recessed lighting sealing requirement	Same as change between 2015 IECC and 2018 IECC	None	None
Table R402.4.1.1 Air Barrier and Insulation Installation	RE71-16	Revises HVAC register boot sealing requirement	Same as change between 2015 IECC and 2018 IECC	Proponent's stated reason is to ensure code's intent of durability, comfort, health safety and efficiency is carried out	Proponent indicates a minimal cost impact for additional mastic installation to seal supply boots to subfloor
R402.4.1.2 Testing	RE83-16	Adds RESNET/ICC 380 to building air leakage testing Standard options	ANSI/RESNET/ICC 380 is already included as the building air leakage rate testing Standard in the 2017 FEC	None	None
R402.4.1.2 Testing	RE84-16	Revises building air leakage testing ventilation system sealing specifications to provide clarification and flexibility	Same as change between 2015 IECC and 2018 IECC	None	None, or slightly reduce cost of compliance
R402.4.2 Fireplaces	RE90-16	Removes requirement that where tight-fitting doors are used on masonry fireplaces, the doors be listed and labeled in accordance with UL 907	Same as change between 2015 IECC and 2018 IECC	Proponent argues that "UL 907 is not a useful standard for the purpose of this code requirement", and that the code change will increase the installation of fireplace doors;	Proponent argues that the code change will lower compliance costs "by not having a requirement for a product to meet a non-usable, non-useful standard"

2018 IECC Section and Title	ICC Code Change No.	Change Summary b/t 2015 IECC and 2018 IECC	Change Summary b/t 2017 FEC and 2018 IECC	Anticipated Energy Impact on FEC if Adopted*	Anticipated Cost Impact on FEC if Adopted*
				committee agreed with reason provided	
R403.3 Ducts, R403.3.6 Ducts buried within ceiling insulation (New)	RE99-16, RE100-16	Adds new ducts section stipulating R-value and vapor retarder requirements for supply and return ducts buried within ceiling insulation	Same as change between 2015 IECC and 2018 IECC	Proponent states that DOE Building America research definitively shows energy savings from buried ducts. FSEC's position is that adding this buried duct section to the FEC will provide clarification and will not reduce the stringency of the code, but condensation questions remain in our Florida climate for some cases.	Proponent states that adding this option will not add cost in most situations. FSEC's position is that since the buried duct section is optional, adding it to the FEC would not increase the cost of compliance.
R403.3.2 Sealing (Mandatory)	RE102-16	Removes duct sealing exceptions which already exist in the IRC and IMC	The 2017 FEC does not include the removed sections, so no FEC change	None	None
R403.3.3 Duct testing (Mandatory)	RE105-16	Adds duct testing exception for ducts serving HRVs or ERVs that are not integrated with heating or cooling system ducts	Same as change between 2015 IECC and 2018 IECC	If agreed that, as proponent states, this change is only a clarification, no impact on FEC; especially since code compliant mechanical ventilation is continuous, FSEC does not however	If agreed that, as proponent states, this change is only a clarification, no impact on cost of compliance with FEC

2018 IECC Section and Title	ICC Code Change No.	Change Summary b/t 2015 IECC and 2018 IECC	Change Summary b/t 2017 FEC and 2018 IECC	Anticipated Energy Impact on FEC if Adopted*	Anticipated Cost Impact on FEC if Adopted*
				agree with the ICC committee reason statement for accepting this change: "there is no concern about duct leakage for ducts for HRV units"	
R403.3.7 Ducts located in conditioned space (New)	RE100-16	Specifies two separate conditions under which ducts are considered as being inside conditioned space: 1) for duct systems that are completely within the continuous air barrier and building thermal envelope, and 2) for buried ducts that meet stipulated air handler location, duct leakage, and ceiling insulation R-value requirements	Same as change between 2015 IECC and 2018 IECC.	Proponent's justification in part states "The DOE Zero Energy Ready Home defines ducts inside conditioned space as, 'Duct distribution systems located within the home's thermal and air barrier boundary or optimized to achieve comparable performance.'" Proponent also states that condition #1 (substituting being in conditioned space) "provides for the traditional code definition of being within conditioned space." The proponent also states that "research has shown that virtually all the benefits of locating ducts inside	Proponent states that this code change will not increase the cost of construction, but cost justification appears to be for buried ducts in general, rather than specific to ducts being considered as inside a conditioned space FSEC agrees that the "R403.3.7 Ducts located in conditioned space" part of this mod does not in itself add any stringency, so would not increase the cost of compliance with the FEC

2018 IECC Section and Title	ICC Code Change No.	Change Summary b/t 2015 IECC and 2018 IECC	Change Summary b/t 2017 FEC and 2018 IECC	Anticipated Energy Impact on FEC if Adopted*	Anticipated Cost Impact on FEC if Adopted*
				<p>conditioned space can be achieved” by an air handler located in conditioned space and very low leakage insulated, buried ducts in a vented attic (as is provided in condition #2).</p> <p>FSEC’s position regarding condition #1 is that this change may be misguided and should not be part of the Florida code; see discussion in footnote below⁷. FSEC’s position on Condition #2 is that overall the buried duct and other stipulations provided are not as good as ductwork in the conditioned</p>	

⁷ FSEC’s position is that duct conduction and leakage are important parameters in Florida. Duct systems may be completely within the continuous air barrier and building thermal envelope and yet not experience the same temperatures as the main conditioned space of a home. For example, duct work in sealed attics that are separated from the conditioned space by a drywall ceiling usually experience summer afternoon temperatures about 5°F (Parker et al. 2002) higher than in the conditioned space below. That temperature difference can make a difference. Software that models the space can apply those effects in the performance method, but to allow the substitute of being in the conditioned space may be misguided and should not be part of the Florida code.

2018 IECC Section and Title	ICC Code Change No.	Change Summary b/t 2015 IECC and 2018 IECC	Change Summary b/t 2017 FEC and 2018 IECC	Anticipated Energy Impact on FEC if Adopted*	Anticipated Cost Impact on FEC if Adopted*
				space but may be close; see discussion in footnote below ⁸	
R403.3.6.1 Effective R-value of deeply buried ducts (New) [shown as R403.3.8 (New) in Revision History]	RE110-16	Allows an effective duct insulation of R-25 to be claimed for performance simulations for deeply buried ducts that meet stipulated placement and insulation conditions	Same as change between 2015 IECC and 2018 IECC.	<p>Proponent states that effective R-25 value is based on peer reviewed research and similar language is in the California Title 24 energy code</p> <p>FSEC's position is that assigning an effective duct insulation value of R-25 for performance simulation purposes in applicable cases is appropriate and will not reduce the stringency of the FEC, but condensation questions remain in our Florida climate for some cases</p>	<p>Proponent states that this option will not increase the cost of construction, and if used provides an efficiency credit that may make other efficiency measures unnecessary</p> <p>FSEC agrees that since deeply buried ducts are optional and assigning R-25 to them for simulation purposes will allow efficiency trade-offs, adding this section to the FEC would not increase the cost of compliance</p>
R403.5.2 Demand recirculation water systems	CE174-16 Part II	Editorial revisions to demand recirculation water system section to remove definitional language (moving this language to the corresponding definition	Same as change between 2015 IECC and 2018 IECC	None	None

⁸ Condition #2 (buried ducts) is a little different as it implies that the ductwork is very well insulated through the R-13 duct insulation in our climate and buried in the attic insulation. The criteria for air handler location and extra tight ducts are good measures. Overall this option is not as good as ductwork in the conditioned space but may be close (Mallay 2016). Note that these ducts will still need to be tested just like any attic located ductwork so the prescriptive FEC testing exception for ductwork in conditioned space would not apply.

2018 IECC Section and Title	ICC Code Change No.	Change Summary b/t 2015 IECC and 2018 IECC	Change Summary b/t 2017 FEC and 2018 IECC	Anticipated Energy Impact on FEC if Adopted*	Anticipated Cost Impact on FEC if Adopted*
		in Section R202) and make text more technically correct			
R403.6.1 Whole-house mechanical ventilation system fan efficiency	RE121-16	Rewords exception requiring air handlers used to provide whole-house mechanical ventilation be powered by electronically commutated motors	Same as change between 2015 IECC and 2018 IECC	None	None
Table R403.6.1 Whole-House Mechanical Ventilation System Fan Efficiency	RE121-16	Adds minimum whole-house mechanical ventilation fan efficacy requirement for HRVs and ERVs of 1.2 cfm/watt	Same as change between 2015 IECC and 2018 IECC	May increase stringency of FEC in some cases; proponent estimates ~\$92/year in fan energy cost savings vs. worst performing H/ERVs currently available	May increase cost of compliance with FEC in some cases; proponent states that cost change is not significant
R403.10.3 Covers	CE176-16 Part II	Removes “site-recovered energy” from the pool and spa cover exception to clarify that the exception is intended to include heat pump pool heaters	Same as change between 2015 IECC and 2018 IECC	None	None
R403.10.3 Covers	CE177-16 Part II	Makes three revisions to the pool and spa cover exception text: “Where more than 70 <u>75</u> percent of the energy for heating, computed over an operation season <u>of at least 3 calendar months</u> , is from site-recovered energy, such as from a heat pump or solar energy source <u>on-site renewable energy system</u> , covers or other vapor-retardant means shall not be required.”	Same as change between 2015 IECC and 2018 IECC	Will increase the stringency of the FEC in applicable cases where pool or spa covers are not provided	Will increase the cost of compliance with the FEC in applicable cases where pool or spa covers are not provided; proponent estimates increase in cost at approximately 7%.
R404.1 Lighting equipment (Mandatory)	RE126-16	Removes the low-voltage lighting exception from the 75% high efficacy lighting equipment requirement	Same as change between 2015 IECC and 2018 IECC	May increase stringency of code, if per proponent, leaving the	Proponent states that there is no correlation between lighting fixture

2018 IECC Section and Title	ICC Code Change No.	Change Summary b/t 2015 IECC and 2018 IECC	Change Summary b/t 2017 FEC and 2018 IECC	Anticipated Energy Impact on FEC if Adopted*	Anticipated Cost Impact on FEC if Adopted*
				exception in place is interpreted as allowing 12-volt halogen fixtures	voltage and cost, so the change will not increase the cost of compliance
R404.1 Lighting equipment (Mandatory)	RE127-16	Revises wording of lighting equipment efficacy requirement and changes requirement from 75% to 90% high-efficacy	Same as change between 2015 IECC and 2018 IECC	Will increase the stringency of the FEC	Proponent states that high-efficacy lighting is now price competitive with other lighting so this change will not increase the cost of compliance
R405.1 Scope	RE132-16	Adds “mechanical ventilation” to Scope section of simulated performance compliance alternative to clarify code intent that mechanical ventilation is included in performance compliance calculations	Same as change between 2015 IECC and 2018 IECC	None	None
R405.3 Performance-based compliance	RE140-16	Updates name of DOE Energy Information Administration energy price source used for performance compliance calculations	The FEC does not use energy cost for its performance compliance calculation, so this change would not apply in Florida	None	None
R405.4.2 Compliance report	RE142-16	Allows batch sampling to determine performance compliance of stacked multifamily units	Same as change between 2015 IECC and 2018 IECC	May reduce stringency of the FEC in applicable cases	May reduce cost of code compliance in applicable cases
Table R405.5.2(1) Specifications for the Standard Reference and Proposed Designs	RE143-16	Removes performance compliance proposed design building air leakage rate for residences that are not tested	The 2017 FEC already has this change. Note: the proponent’s argument is that in the IECC building air leakage testing is mandatory in all buildings; the IECC does not include the FEC’s two building air leakage testing exceptions	Not applicable to FEC unless current FEC building air leakage testing exceptions are removed	Not applicable to FEC unless current FEC building air leakage testing exceptions are removed

2018 IECC Section and Title	ICC Code Change No.	Change Summary b/t 2015 IECC and 2018 IECC	Change Summary b/t 2017 FEC and 2018 IECC	Anticipated Energy Impact on FEC if Adopted*	Anticipated Cost Impact on FEC if Adopted*
Table R405.5.2(1) Specifications for the Standard Reference and Proposed Designs	RE149-16	Modifies the performance compliance mechanical ventilation standard reference design's energy use equation to use fan efficacy requirements in Table R403.6.1 instead of a fixed efficacy of 2.2 cfm/watt	Same as change between 2015 IECC and 2018 IECC	Potentially reduced stringent for some mechanical ventilation systems	Potentially reduced cost to comply for homes with some mechanical ventilation systems
Table R405.5.2(1) Specifications for the Standard Reference and Proposed Designs	RE152-16	Adds the following exception to the performance compliance thermal distribution systems standard reference design: "For non-ducted heating and cooling systems not having a fan, the standard reference design distribution system efficiency (DSE) shall be 1."	Same as change between 2015 IECC and 2018 IECC	Increases stringency for homes with non-ducted heating and cooling systems.	Potentially increases cost to comply for homes with non-ducted heating and cooling systems.
R406.3, [R406.3.1], R406.6.1, R406.6.4, R406.6.5, R406.7, and [R406.7.1]	RE166-16	References Standard ANSI/RESNET/ICC 301-2014 for Section R406 Energy Rating Index compliance and removes or revises language in Section R406 that is no longer needed because the stipulation is covered in the Standard: 1) Removes Index definition language in Section R406.3 and replaces it with "shall be determined in accordance with ANSI/RESNET/ICC 301 2) Deletes Section R406.3.1 ERI reference design language 3) Revises Section R406.6.1 compliance software tools language, stipulating "Approved Software Rating	2017 FEC and 2018 IECC change summaries below are numbered same as change summaries between 2015 IECC and 2018 IECC in column to left: 1) The 2017 FEC already requires that the ERI be determined according to ANSI/RESNET/ICC 301 2) Since the 2017 FEC already specifies its reference design per ANSI/RESNET/IECC 301, adopting this change would not change the FEC's reference design 3) The 2017 FEC specifies Florida Building Commission (FBC) approved software	Anticipated energy impacts on FEC below are numbered same as change summaries to left of this column: 1) None 2) None 3) None likely, if RESNET approved software 4) None if FEC continues to require FBC approved software 5) May increase consistency of FEC ERI	Anticipated impacts on cost of compliance with FEC below are numbered same as change summaries to left of this column: 1) None 2) None 3) None 4) May slightly increase cost of compliance if documentation must be provided 5) May slightly reduce cost of calculating compliance in

2018 IECC Section and Title	ICC Code Change No.	Change Summary b/t 2015 IECC and 2018 IECC	Change Summary b/t 2017 FEC and 2018 IECC	Anticipated Energy Impact on FEC if Adopted*	Anticipated Cost Impact on FEC if Adopted*
		<p>Tools in accordance with ANSI/RESNET/ICC 301”</p> <p>4) Revises Section R406.6.4 (formerly R406.7.2) specific approval language, now requiring documentation demonstrating the approval of analysis tools be provided to the code official</p> <p>5) Revises Section R406.6.5 (formerly R406.7.3) regarding input values, now requiring input values not specified by Sections R402 through R405 to be taken from ANSI/RESNET/ICC 301 instead of an approved source</p> <p>6) Deletes Section R406.7.1 which defined software tool minimum capabilities</p>	<p>4) Same as change between 2015 IECC and 2018 IECC, except FEC also requires Florida Building Commission approval for analysis tools</p> <p>5) Same as change between 2015 IECC and 2018 IECC</p> <p>6) Same as change between 2015 IECC and 2018 IECC</p>	<p>compliance in applicable cases</p> <p>6) None</p>	<p>applicable cases since builders can follow the ANSI/RESNET /ICC 301 instead of searching for an approved source</p> <p>6) None</p>
R406.3 Energy Rating Index	RE166-16 Comment 1	Adds Equation 4-1 to the Energy Rating Index compliance stipulations which specifies the ERI reference design ventilation rate as: Ventilation rate, CFM = (0.01 x total square foot area of house) + [7.5 x (number of bedrooms + 1)]	Same as change between 2015 IECC and 2018 IECC	RESNET is analyzing this change and will comment on its likely impact when the analysis is completed; FSEC believes the change was made without much discussion and may not be as clearly defined as needed.	RESNET is analyzing this change and will comment on its likely impact when the analysis is completed
R406.3 Energy Rating Index	CE248-16 Part II	Adds the following text to the Energy Rating Index compliance stipulations as clarification of	Same as change between 2015 IECC and 2018 IECC	None	None

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		what is to be excluded from ERI scope (August 2017 first printing version of 2018 IECC provided here instead of revision history version): “Energy used to recharge or refuel a vehicle used for transportation on roads that are not on the building site shall not be included in the ERI <i>reference design</i> or the <i>rated design</i> .”			
Table R406.4 Maximum Energy Rating Index	RE173-16	Increases the IECC Energy Rating Index compliance maximum Index values in all Climate Zones; in Florida (Climate Zones 1 and 2), it raises the maximum Index from 52 to 57	If adopted by the FEC, this change would lower the FEC maximum Index from the current 58 to 57	Will increase the stringency of the FEC slightly	Will increase the cost of compliance with the FEC slightly
Table R406.4 Maximum Energy Rating Index note “a”	RE173-16 Comment 1	Requires 2015 IECC building thermal envelope efficiencies if on-site renewable energy is included for ERI compliance	The 2017 FEC already includes the same requirement	None	None
Chapter R5: Existing Buildings					
R501.4 Compliance	CE274-16 Part II	Adds the IECC and International Existing Building Code to list of codes with which alterations, repairs, additions and changes of occupancy to, or relocation of, existing buildings and structures are required to comply	Same as change between 2015 IECC and 2018 IECC	The fact that the added codes were not included in the 2015 IECC is seen as an oversight by the proponent; no stringency impact to FEC if seen the same way	The fact that the added codes were not included in the 2015 IECC is seen as an oversight by the proponent; no cost impact to FEC if seen the same way
R501.6 Historic buildings	CE275-16 Part II	Change not found in revision history, but August 2017 first printing of 2018 IECC revises	Same as change between 2015 IECC and 2018 IECC	None	None

2018 IECC Section and Title	ICC Code Change No.	Change Summary b/t 2015 IECC and 2018 IECC	Change Summary b/t 2017 FEC and 2018 IECC	Anticipated Energy Impact on FEC if Adopted*	Anticipated Cost Impact on FEC if Adopted*
		wording of historic building compliance exemptions slightly (appears to only be a clarification)			
R502.1.1.2 Heating and cooling systems	RE183-16	Stipulates that Section R403 requirements (instead of only Sections R403.1, R403.2, R403.3, R403.5 and R403.6) must be met for new heating, cooling and duct systems that are part of an addition	Same as change between 2015 IECC and 2018 IECC	Will increase the stringency of the FEC; FSEC's position is that since Section R403 covers a number of systems outside of heating, cooling and duct systems (such as service hot water systems and pools), this change should be further reviewed before including in the FEC	Will increase the cost of compliance with the FEC
R503.1.1.1 Replacement fenestration	RE184-16	Adds the following alterations clarification for replacement fenestration (slight difference in wording between revision history and August 2017 first printing of 2018 IECC; IECC version shown here): "Where more than one replacement fenestration unit is to be installed, an area-weighted average of the <i>U</i> -factor, SHGC or both of all replacement fenestration units shall be an alternative that can be used to show compliance."	Same as change between 2015 IECC and 2018 IECC	None	None
R503.1.2 Heating and cooling systems	RE183-16	Stipulates that Section R403 requirements (instead of only Sections R403.1, R403.2,	Same as change between 2015 IECC and 2018 IECC	Will increase the stringency of the FEC; FSEC's	Will increase the cost of compliance with the FEC

2018 IECC Section and Title	ICC Code Change No.	Change Summary b/t 2015 IECC and 2018 IECC	Change Summary b/t 2017 FEC and 2018 IECC	Anticipated Energy Impact on FEC if Adopted*	Anticipated Cost Impact on FEC if Adopted*
		R403.3 and R403.6) must be met for new heating, cooling and duct systems that are part of an alteration		position is that since Section R403 covers a number of systems outside of heating, cooling and duct systems (such as service hot water systems and pools), this change should be further reviewed before including in the FEC	
Chapter R6: Referenced Standards					
RESNET/ICC	RE83-16	Adds ANSI/RESNET/ICC 380-2016 to referenced standards	ANSI/RESNET/ICC 380-2016 is already referenced in the 2017 FEC	None	None
RESNET/ICC	RE166-16	Adds ANSI/RESNET/ICC 301-2014 to referenced standards	ANSI/RESNET/ICC 301-2014 is already referenced in the 2017 FEC	None	None
Appendix RA: Recommended Procedure for Worst-Case Testing of Atmospheric Venting Systems under R402.4 or R405 Conditions <= 5ACH₅₀					
[Appendix RA of 2015 IECC]	RE187-16	Deletes informative appendix: Recommended Procedure for Worst-Case Testing of Atmospheric Venting Systems Under R402.4 or R405 Conditions <= 5 ACH ₅₀	Same as change between 2015 IECC and 2018 IECC	None (informative only)	None (informative only)

* FSEC assessment of energy and cost impacts consistent with those in 2018 I-Codes Revision History unless otherwise noted.

** Code section numbers in [brackets] are 2015 IECC residential sections that were deleted in their entirety in the 2018 IECC.