

## Code Change Review Summary

The 2018 IECC code with respect to 2015 IECC and 2017 Florida Energy Code (FEC) is summarized in Table A. 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.

**Change Summary b/t 2015 IECC and 2018 IECC:** brief description of the code change between the 2015 IECC and 2018 IECC and/or **b/t 2017 FEC and 2018 IECC.**

**Pulled for October 8, 2018 TAC Meeting: (Yes/No):** “Yes” means the code change is recommended for consideration by Energy TAC on October 8, 2018 meeting. “No” means either code change is already approved by Energy TAC during June 18, 2018 meeting or not recommended for consideration now.

**Anticipated Energy Impact on FEC if Adopted:** energy use impact from the code change. 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:** construction cost impact from the code change. This is usually a decrease in construction cost, increase construction cost, or none. None means the code change has no or negligible impact on construction cost.

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

S. No.	2018 IECC Section and Title	Change Summary b/t 2015 IECC and 2018 IECC, b/t 2017 FEC and 2018 IECC	Pulled for October 8, 2018 TAC Meeting (Yes/No)	Anticipated Energy Impact on FEC if Adopted*	Anticipated Cost Impact on FEC if Adopted*
1	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 and increased maximum F-factors for climate zones 1- 8 for heated slab-on-grade floors to make it consistent with R-values in R-Value Method. This change increases first cost.	Yes	Decreases Energy Use	Increases cost
2	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 construction cost.	Yes	Decreases Energy Use	None
3	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. Increase first cost of construction.	Yes	Decreases Energy Use	Increases cost
4	C403.10.2.1 Performance standards (Mandatory), CE126-16	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.	No. Already approved, federal minimum.	Decreases Energy Use	Increases costs
5	TABLE C403.2.3(3), CE132-16	Updated Table C403.2.3(3) Minimum Efficiency Requirements of electrically operated: PTACs, PTHPs, Single Package Vertical ACs, Single Package Vertical HPs, Room ACs 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.	No. Already approved, federal minimum.	Decreases Energy Use	Increases cost
6	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 first cost.	Yes.	Decreases Energy Use	Increases cost.

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

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

S. No	2018 IECC Section and Title, ICC Code Change No	Change Summary b/t 2015 IECC and 2018 IECC, b/t 2017 FEC and 2018 IECC	Pulled for October 8, 2018 TAC Meeting (Yes/No)	Anticipated Energy Impact on FEC if Adopted*	Anticipated Cost Impact on FEC if Adopted*
7	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 first cost but cost effective.	Yes	Decreases Energy Use	Increases cost
8	C403.7.6.1 Temperature setpoint controls, CE138-16	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 first cost but cost effective.	Yes	Decreases Energy Use	Increases cost
9	C403.7.6.2 Ventilation controls, CE138-16	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 first cost but cost effective.	Yes	Decreases Energy Use	Increases cost
10	C403.7.7 Shutoff dampers (Mandatory), CE139-16	Edited code section C403.2.4.3. Restricts gravity dampers use for “exhaust and relief” system only. This change is restrictive and if adopted requires motorized dampers for outdoor air intake. Increases first cost but saves energy use.	Yes	Decreases Energy Use	Increases cost
11	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. None or minimal effect on first cost.	No. Already approved, federal minimum.	Decreases Energy Use	None, or minimal first cost increase
12	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.	No. FEC 6 <sup>th</sup> ed. already meets the 2018 IECC minimum energy efficiency requirements for warm-air furnaces.	Decreases Energy Use	Increases cost

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

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13	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.	No. Already approved, federal minimum	Decreases Energy Use	Increases cost
14	C403.4.4 Part-load controls, CE162-16	Modified code section C403.4.2.4. Edited the text and reduced the hydronic system capacity lower limit 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 first cost. PNNL study shows that this code change is cost effective, SIR=1.2.	Yes	Decreases Energy Use	Increases cost
15	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 first cost. PNNL study shows that this code change is cost effective, SIR=1.4.	No. Already approved	Decreases Energy Use	Increases cost
16	C403.9.1 Fan speed control, CE165-16	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 first cost. PNNL study shows that this code change is cost effective, SIR=1.4.	No. Already approved	Decreases Energy Use	Increases cost

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

S. No.	2018 IECC Section and Title, ICC Code Change No	Change Summary b/t 2015 IECC and 2018 IECC, b/t 2017 FEC and 2018 IECC	Pulled for October 8, 2018 TAC Meeting (Yes/No)	Anticipated Energy Impact on FEC if Adopted*	Anticipated Cost Impact on FEC if Adopted*
17	C403.9.2 Multiple-cell heat rejection equipment, CE165-16	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 first cost. PNNL study shows that this code change is cost effective, SIR=1.4.	No. Already approved	Decreases Energy Use	Increases cost
18	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.	No. Already approved	Decreases Energy Use	Increases cost
19	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 first cost. Saves energy.	No. Already approved	Decreases Energy Use	None
20	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.	No. Already approved, federal minimum.	Decreases Energy Use	Increases cost
21	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% first cost increase.	Yes. <b>But I am not sure how significant the saving would be for Florida?</b>	Decreases Energy Use	Increases cost

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S. No.	2018 IECC Section and Title, ICC Code Change No	Change Summary b/t 2015 IECC and 2018 IECC, b/t 2017 FEC and 2018 IECC	Pulled for October 8, 2018 TAC Meeting (Yes/No)	Anticipated Energy Impact on FEC if Adopted*	Anticipated Cost Impact on FEC if Adopted*
22	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 first cost but cost effective.	No. Already approved	Decreases Energy Use	Increases cost
23	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.	No. Already approved.	Decreases Energy Use	None
24	C405.2.6.1 Daylight shutoff, CE196-16	Added new code section C405.2.6.1. Lighting shall be automatically turned off when there is sufficient daylight. No first cost increase.	No Already approved	Decreases Energy Use	None
25	C405.2.6.2 Decorative lighting shutoff, CE196-16	Added new code section C405.2.6.2. Decorative lighting shutoff requirement. No first cost increase.	No Already approved	Decreases Energy Use	None
26	C405.2.6.3 Lighting setback, CE196-16	Added new code section C405.2.6.3. Lighting setback requirement. No first cost increase.	No Already approved	Decreases Energy Use	None
27	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 first cost increase.	No Already approved	Decreases Energy Use	None
28	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.	Yes	Decreases Energy Use	Decreases cost
29	TABLE C405.3.2 (1), CE206-16	Reduced the LPD values in Table C405.4.2(1) for most of the building area types. May increase first cost also but decreases energy use. Cost effective especially when the 2018 code becomes into effect due to decline in LED first cost and maintenance cost.	No Already approved	Decreases Energy Use	Increases cost

30	TABLE C405.3.2 (2), CE206-16	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.	No Already approved	Decreases Energy Use	Increases cost
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Table A: Commercial Code Change Summary for 6<sup>th</sup> Edition (2017) Florida Energy Code vs. 2018 IECC (continued)

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31	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.	No Already approved	Decreases Energy Use	None
32	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.	No Already approved	Decreases Energy Use	None
33	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.	Yes	Decreases Energy Use	Increases cost
34	Table C405.4.2(2) LIGHTING POWER ALLOWANCES FOR BUILDING EXTERIORS, CE215-16	Modified Table C405.5.1 (2). Reduced the exterior lighting power allowance values for tradable exterior building surfaces and modified the table format. No first cost increase.	Yes	Decreases Energy Use	None
35	Table C405.4.2(3) INDIVIDUAL LIGHTING POWER ALLOWANCES FOR BUILDING EXTERIORS, CE215-16	Modified Table C405.5.1 (2). Reduced the exterior lighting power allowance values for non-tradable exterior building surfaces and modified the table format. No first cost increase.	Yes	Decreases Energy Use	None

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36	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.	No.  Already approved, federal minimum.	Decreases Energy Use	None
37	C405.7 Electrical motors (Mandatory), CE223-16	Modified code section C405.8. Added new exceptions for electric motors from minimum efficiency requirements. No first cost increase.	No.  Already approved	Decreases Energy Use	None
38	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) CE223-16	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 first cost but also decreases energy use compared to the previous minimum efficiency. Cost effective with payback period of 2.9 – 4.5 years.	No.  Already approved	Decreases Energy Use	Increases cost
39	Table C405.7(2) MINIMUM NOMINAL FULL-LOAD EFFICIENCY FOR NEMA DESIGN C AND IEC DESIGN H MOTORS AT 60 HZ, CE223-16	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.	No.  Already approved	Decreases Energy Use	Increases cost



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40	C406.1 Requirements, CE230-16	Modified code section C406.1. Added two more compliance alternatives for Efficiency Package options. No first cost increase, may even reduce first cost due to design flexibility.	Yes	Decreases Energy Use	None
41	C406.8 Enhanced envelope performance, CE230-16	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.	Yes	Decreases Energy Use	None
42	C406.9 Reduced air infiltration, CE230-16	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 <sup>2</sup> under a pressure difference of 0.3 in (75 Pa). Exception applies if the conditioned floor area is greater than 250,000 ft <sup>2</sup> . No cost increase.	Yes	Decreases Energy Use	None
43	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.	Yes	None	Decrease cost
44	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.	Yes	None	Decrease cost