Analysis of Changes for the

9th Edition (2026) Florida Codes

Changes to the Florida Building Code, Energy Conservation

This *Analysis of Changes for the 9th Edition (2026) Florida Codes* is intended to provide a comprehensive comparison of the provisions in the *Florida Building Code, Energy Conservation, 8th Edition (2023)* (FBCEC 8th Edition (2023)) and the *Florida Building Code, Energy Conservation, 9th Edition (2026)* (FBCEC 9th Edition (2026)). The FBCEC 8th Edition (2023) is the base code for the FBCEC 9th Edition (2026), with changes coming from both the 2024 International Energy Conservation Code (IECC) and other Florida Building Commission approved modification proposals. This *Analysis* will serve as a useful tool to facilitate the transition to the new code.

The *Analysis* is arranged so that comparable provisions in the two codes can be easily located. The left two columns contain section numbers and titles of the corresponding requirements from the FBCEC 8th Edition (2023). The next two columns contain section numbers and titles of the corresponding requirements in the FBCEC 9th Edition (2026). The far-right column contains a brief analysis or comments on the differences between the provisions.

This *Analysis* is not intended to replace or interpret the provisions of the FBCEC 8th Edition (2023) or the FBCEC 9th Edition (2026). This information simply points out the differences. The *Analysis* is not designed to be used without the aid of the representative code books, as all the details pertaining to a specific section may or may not be provided. However, this *Analysis* will provide an easy means for identifying differences in the two codes, as well as enabling the user to locate issue specific provisions in the FBCEC 9th Edition (2026) by means of a numbered section cross reference.

Notable changes deemed to be the most significant or to have the greatest impact have been highlighted in yellow.

Commercial Provisions Changes

8th Edition (2023) FBCEC		9th Edition (2026) FBCEC		Analysis
Section	**Requirement**	**Section**	**Requirement**	
Chapter 2 [CE]: Definitions				
-	-	C202	Definitions: Air-Circulating Fan	New definition for air-circulating fan.
-	-	C202	Definitions: Construction Documents	New definition for construction documents.
-	-	C202	Definitions: Demand Control Kitchen Ventilation (DCKV)	New definition for demand control kitchen ventilation.
-	-	C202	Definitions: Demand Responsive Control	New definition for demand responsive control.
-	-	C202	Definitions: DX-Dedicated Outdoor Air System Unit (DX-DOAS Unit)	New definition for DX-dedicated outdoor air system unit.
-	-	C202	Definitions: East-Oriented	New definition for east-oriented.
-	-	C202	Definitions: Emittance	New definition for emittance.
-	-	C202	Definitions: Energy Recovery, Series	New definition for energy recovery, series.
-	-	C202	Definitions: Energy Recovery Ratio, Series (SERR)	New definition for energy recovery ratio, series.

-	-	C202	Definitions: Energy Storage System (ESS)	New definition for energy storage system.
-	-	C202	Definitions: Energy Use Intensity (EUI)	New definition for energy use intensity.
-	-	C202	Definitions: Exterior Wall Envelope	New definition for exterior wall envelope.
-	-	C202	Definitions: Fan Electric Input Power	New definition fan electric input power.
-	-	C202	Definitions: Fan System	New definition for fan system.
-	-	C202	Definitions: Fan System, Complex	New definition for fan system, complex.
-	-	C202	Definitions: Fan System, Exhaust or Relief	New definition for fan system, exhaust or relief.
-	-	C202	Definitions: Equivalent Diameter	New definition for equivalent diameter.
-	-	C202	Definitions: Fan System, Single-Cabinet	New definition for fan system, single-cabinet.
-	-	C202	Definitions: Fan System, Transfer	New definition for fan system, transfer.
-	-	C202	Definitions: Fan System, Airflow	New definition for fan system, airflow.
C202	Definitions: Greenhouse	C202	Definitions: Greenhouse	Revised the definition by adding a skylight roof ratio threshold of 50 percent or more above the growing area.

-	-	C202	Definitions: Horticulture Lighting	New definition horticulture lighting.
-	-	C202	Definitions: Humidistatic Controls	New definition for humidistatic controls.
-	-	C202	Definitions: Indoor Grow	New definition for indoor grow.
C202	Definitions: Listed	C202	Definitions: Listed	Revised definition to include listing type categories.
-	-	C202	Definitions: North-Oriented	New definition for north-oriented.
-	-	C202	Definitions: Occupied-Standby Mode	New definition for occupied-standby mode.
-	-	C202	Definitions: Photosynthetic Photon Efficiency (PPE)	New definition photosynthetic photon efficiency.
-	-	C202	Definitions: Physical Renewable Energy Power Purchase Agreement	New definition physical renewable energy power purchase agreement.
-	-	C202	Definitions: Process Application	New definition for process application.
-	-	C202	Definitions: Pump Energy Index (PEI)	New definition for pump energy index.
C202	Definitions: Renovated Building	C202	Definitions: Renovated Building	Revised definition to include alteration due to natural disaster

				situation when declared by the Governor.
-	-	C202	Definitions: Sensible Energy Recovery Ratio	New definition for sensible energy recovery ratio.
-	-	C202	Definitions: Simulated Building Performance	New definition for simulated building performance.
-	-	C202	Definitions: South-Oriented	New definition for south-oriented.
C202	Definitions: Standard Reference Design	C202	Definitions: Standard Reference Design	Replaced the text "*building performance*" with "*simulated building performance*" in the definition.
-	-	C202	Definitions: Thermal Bridge	New definition for thermal bridge.
-	-	C202	Definitions: West-Oriented	New definition for west-oriented.
Chapter 3 [CE]: General Requirements				
C303.1.3	Table C303.1.3(1) Default Glazed Fenestration U-Factors	C303.1.3	Table C303.1.3(1) Default Glazed Fenestration U-Factors	Under "Frame Type," change the text "*Glazed block*" to "*Glass block*."

C303.1.3	C303.1.3 Fenestration product rating.	C303.1.3	C303.1.3 Fenestration product rating	Modified the section to clarify that the product rating metrics must include solar heat gain coefficient (*SHGC*) and visible transmittance (*VT*). The label and label certificate specific to products in the project must be authorized by an NFRC-licensed independent certification and Inspection Agency (IA). Also, annual visual transmittance (VT_{annual}) of tubular daylighting devices, must be measured and rated in accordance with ANSI/NFRC 203.
Chapter 4 [CE]: Commercial Energy Efficiency				
C401.2	Application	C401.2	Application	Modified the compliance requirements for simulated building performance method by introducing a new equation that estimates the percentage of the annual energy cost (PAEC) of the standard reference design and requires the following: (1) the energy prices must be from approved sources, and the code officials must be permitted to require time-of-use pricing in energy cost calculations, (2) the reduction in energy cost of the proposed design associated with on-site renewable energy must be not more than 5% of the total energy cost, and

				(3) the amount of renewable energy purchased from off-site sources must be the same in standard reference and the proposed designs.
Table C402.1.1.1	Fenestration Thermal Envelope Maximum Requirements	Table C402.1.1.1	Fenestration Building Thermal Envelope Maximum Requirements	Modified the title by adding the text "*Building*."
Table C402.1.3	Opaque Thermal Envelope Insulation Component Minimum Requirements, R-Value Method	Table C402.1.3	Opaque Thermal Envelope Insulation Component Minimum Requirements, R-Value Method	Removed the non-swinging opaque door *R-Value* requirements from this table. Now the non-swinging opaque doors minimum thermal efficiency requirement is based on *U-Factor*, instead of *R-value*. Also edited the below grade floor *R-value* requirements in the footnote for clarity.
Table C402.1.4	Opaque Thermal Envelope Insulation Component Minimum Requirements, U-Factor Method	Table C402.1.4	Opaque Thermal Envelope Insulation Component Minimum Requirements, U-Factor Method	Added opaque door *U-Factor* requirements for non-swinging doors. And updated *U-Factor* of swinging doors, *F-Factor* of slab-on-grade heated floors and updated and edited the footnotes for clarity.
C402.2.2	Roof assembly	C402.2.2	Roof assembly	The suspended ceiling minimum thermal resistance requirement is moved into a new subsection C402.2.2.1.

-	-	C402.2.2.1	Suspended ceilings (Mandatory)	Added a new sub-section that insulation installed on suspended ceilings having removable ceiling tiles must not be considered part of the assembly *U-factor* of the roof-ceiling construction and must not be considered part of the minimum thermal resistance (*R-value*) of roof insulation in roof-ceiling construction.
C402.1.3	Insulation component R-value-based method	C402.1.3	Insulation component R-value-based method	Edited, and rearranged the section and moved some of the requirements to two new sub-sections C402.1.3.1 and C402.1.3.2.
-	-	C402.1.3.1	R-value of multi-layered insulation components	Added a new section C402.1.3.1 that clarifies the *R-value* of multi-layered insulation components requirements. Where cavity insulation is installed in multiple layers, the cavity insulation *R-values* must be summed to determine compliance with the cavity insulation *R-value* requirements. Where continuous insulation is installed in multiple layers, the continuous insulation *R-values* must be summed to determine compliance with the continuous insulation *R-value*

				requirements. Cavity insulation *R-values* must not be used to determine compliance with the continuous insulation *R-value* requirements in Table C402.1.3.
-	-	C402.1.3.2	Area-weighted averaging of R-values	Added a new Section C402.1.3.2 that states an area-weighted averaging must not be permitted for *R-value* compliance and has an exception for tapered above deck roof insulation requirements. Exception: For tapered above-deck roof insulation, compliance with the *R-value* required in Table C402.1.3 must be permitted to be demonstrated by multiplying the rated *R-value* per inch of the insulation material by the average thickness of the roof insulation. The average thickness of the roof insulation must be equal the total volume of the roof insulation divided by the area of the roof.

-	-	C402.1.3.3	Mass walls and mass floors	This new provision defines compliance with required maximum *U-factors* for mass walls and mass floors in accordance with Table C402.1.4 and minimum *R-values* for insulation components applied to mass walls and mass floors in accordance with Table C402.1.3. Also defines the criteria which construction assemblies qualify as mass walls and mass floor construction based on mass in lb/ft^2 and in Btu/(ft^2-°F) thresholds.
Table C402.4	Building Envelope Fenestration Maximum U-Factors and SHGC Requirements	Table C402.4	Building Thermal Envelope Fenestration Maximum U-Factors and SHGC Requirements	Increased the stringency of vertical fenestration: *U-Factors* in climate zones 1 and 2 and *SHGC* in climate zone1 only. Also increased the stringency of *U-factors* and *SHGC* for sky lights in climate zone 1. Modified the title by adding the text "*Thermal.*"
Table C402.3	Minimum Roof Reflectance and Emittance Options	Table C402.3	Minimum Roof Reflectance and Emittance Options	Updated the standard references for testing solar reflectance and thermal emittance in the footnotes.
C402.3.1	Aged roof solar reflectance	C402.3.1	Aged roof solar reflectance	Updated the standard references for the initial solar reflectance testing.
C402.4.3.2	Increased skylight U-factor	C402.4.3.2	Increased skylight U-factor	The increased skylight *U-Factor* provision was extended to apply to climate zone 0 as well.

C402.5.1.1	Air barrier construction	C402.5.1.1	Air barrier construction	Modified item #3 such that sealing must allow for expansion, contraction and mechanical vibration and sealing of fire sprinklers must be as recommended by the manufacturers. Also edited item #5 to say electrical and communication boxes must comply with Section C402.5.10.
C402.5.1.2	Air barrier compliance	C402.5.1.2	Air leakage compliance	The revised provision increased the stringency of measured air leakage rate from 0.40 to 0.35 cfm/ft^2 at 0.3 inch of water gauge for all buildings and as an alternative added a measured leakage rate threshold of 0.27 cfm/ft^2 at 0.2 inch of water gauge for Group I-1 and Group R-1 buildings if tested by an approved third party.
C402.5.1.2.1	Materials	C402.5.1.2.1	Materials	Minor format changes.
C402.5.1.2.2	Assemblies	C402.5.1.2.2	Assemblies	Made editorial and format changes.

C402.5.1.2.3	Building thermal envelope testing	C402.5.1.2.3	Whole building test method and reporting	The change requires the building thermal envelope to be tested by an approved third party, and a report that includes the tested surface area, floor area, air by volume, stories above grade, and air leakage rates must be submitted to the code official and the building owner. Modified the exception by breaking it into two exceptions based on the buildings floor area.
-	-	C402.5.1.2.4	Dwelling and sleeping unit enclosure method and reporting	Adds a new requirement for testing method and reporting requirements for enclosures in dwelling and slipping units. Provides exceptions for corridors, stairwells, and permits enclosed spaces having a conditioned floor area ≤1,500 ft^2 to comply with either Materials or Assemblies section.
C402.5.2	Air leakage of fenestration	C402.5.2	Air leakage of fenestration and opaque doors	Modified section heading by including "*opaque doors*," edited and rearranged the code language. Modified exception item #2 code language to say that fenestration in a building tested in accordance with Section C402.5.1.2 is exempted from the air leakage compliance requirement.

C402.5.4	Doors and access openings to shafts, chutes, stairways and elevator lobbies	C402.5.4	Doors and access openings to shafts, chutes, stairways and elevator lobbies	Modified exception item #2 to say that doors and door openings are required to comply with the Florida Building Code, UL 1784, instead of the International Building Code.
C402.5.5	Air intakes, exhaust openings, stairways and shafts	C402.5.5	Air intakes, exhaust openings, stairways and shafts	Replaced the text "*building envelope*" with "*building thermal envelope*."
C402.5.7	Vestibules	C402.5.7	Vestibules	Revised the provision that doors that have an air curtain unit must demonstrate a velocity of not less than 6.56 ft/s (2 m/s) at 6 inches (152 mm) above the floor when tested in accordance with ANSI/AMCA 220 or ISO 27327-1. Air curtains, curtain units and their controls must comply with function performance testing of section C408.2.3.
C402.5.7	Vestibules	C402.5.7	Vestibules	Made editorial changes.
C402.5.6	Loading dock weather seals	C402.5.6	Loading dock weather seals	Modified the code language by replacing the text "*infiltration*" with "*air leakage*."
C402.5.10	Electrical and communication boxes	C402.5.10	Electrical and communication boxes	Replaced cross-referenced Section C402.5.11 with Section C402.5.10 to fix an erratum.

Table C403.2.3(1)	Minimum Efficiency Requirements: Electrically Operated Unitary Air Conditioners AND Condensing Units	Table C403.2.3(1)	Minimum Efficiency Requirements: Electrically Operated Unitary Air Conditioners AND Condensing Units	Air conditioners (air-cooled): For a single packaged system, all heating types, and capacity < 65 kBtu/h SEER2 increased to 13.8 from 13.4 after 1/1/2023 Minimum efficiency requirements prior to 1/1/23 were removed from the 2026 FBC-EC.
Table C403.2.3(2)	Minimum Efficiency Requirements: Electrically Operated Unitary AND Applied Heat Pumps	Table C403.2.3(2)	Minimum Efficiency Requirements: Electrically Operated Unitary AND Applied Heat Pumps	Minimum efficiency requirements for electrically operated unitary and applied HPs remains the same for all equipment types and capacity size categories. However, the minimum efficiencies prior to 1/1/23 were removed from the 2026 FBC-EC and the minimum heating COP_H at lower temperature ratings are no longer reported.
Table C403.2.3(3)	Minimum Efficiency Requirements: Electrically Operated Packaged Terminal Air Conditioners, Packaged Terminal Heat Pumps, Single-Package Vertical Air Conditioners, Single Vertical Heat	Table C403.2.3(3)	Minimum Efficiency Requirements: Electrically Operated Packaged Terminal Air Conditioners, Packaged Terminal Heat Pumps, Single-Package Vertical Air Conditioners, Single-Package Vertical	The minimum efficiency requirements of PTAC, PTHP, SPVAC, SPVHP and the room air conditioners are the same as those in the 2023 FBC-EC, and the federal minimum requirements for all capacity range and sub-categories.

	Pumps, Room Air Conditioners And Room Air-Conditioner Heat Pumps		Heat Pumps, Room Air Conditioners And Room Air-Conditioner Heat Pumps	
Table C403.2.3(4)	Warm Air Furnaces And Combination Warm Air Furnaces/Air-Conditioning Units, Warm Air Duct Furnaces And Unit Heaters, Minimum Efficiency Requirements	Table C403.2.3(4)	Warm Air Furnaces And Combination Warm Air Furnaces/Air-Conditioning Units, Warm Air Duct Furnaces And Unit Heaters, Minimum Efficiency Requirements	The minimum efficiency values remain the same or equivalent across heating capacity, and inside and outside the US applications for all furnaces by fuel type. However, the 2026 FBC-EC has additional classification based on electric power phases (single phase and three phase electric power supply) and classification by the accompanying cooling capacity. And cooling capacity ≤ 65kBtu/h and U.S. application entry provides references instead of populating the minimum efficiency values. This new classification represents residential applications entries in the 2023 FBC-EC, but the minimum efficiency values remain the same. One notable difference is that mobile home gas and oil-fired warm-air furnace's minimum efficiency

				requirements that were in the 2023 FBC-EC are removed from the 2026 FBC-EC.
Table C403.2.3(5)	Minimum Efficiency Requirements: Gas-And Oil-Fired Boilers	Table C403.2.3(5)	Minimum Efficiency Requirements: Gas-And Oil-Fired Boilers	The minimum efficiency values across all boilers in the 2023 FBC-EC match those in the 2026 FBC-EC except for the oil-fired steam boilers and the size categories ≥ 300 kBtu/h and < 2,500 kBtu/h. For this category, the 2026 FBC-EC has minimum thermal efficiency of 84.0% while the 2023 FBC-EC and the federal minimum require 81.0% minimum thermal efficiency.
Table C403.2.3(7)	Water Chilling Packages—Efficiency Requirements	Table C403.2.3(7)	Water Chilling Packages—Efficiency Requirements	The minimum efficiencies of chillers across all equipment types and sub-categories are the same as those in the 2023 FBC-EC, 2024 IECC and the federal minimum efficiency requirements.
Table C403.2.3(8)	Performance Requirements for Heat Rejection Equipment — Minimum Efficiency Requirements	Table C403.2.3(8)	Performance Requirements for Heat Rejection Equipment — Minimum Efficiency Requirements	The minimum efficiency requirements of heat rejection equipment across all equipment types and sub-categories are the same as those in the 2023 FBC-EC, 2024 IECC and the federal minimum efficiency requirements.

Table C403.2.3(9)	Floor-Mounted Air Conditioners and Condensing Units Serving Computer Rooms—Minimum Efficiency Requirements	Table C403.2.3(9)	Floor-Mounted Air Conditioners and Condensing Units Serving Computer Rooms—Minimum Efficiency Requirements	The minimum efficiency requirements of the floor mounted Air conditioners serving computer rooms across all equipment types, standard model and capacity categories are the same as those in the 2023 FBC-EC, 2026 FBC-EC, 2024 IECC and the federal minimum efficiency requirements.
Table C403.2.3(11)	Minimum Efficiency Requirements Variable Refrigerant Flow Multi-Split Air Conditioners and Heat Pumps	Table C403.2.3(11)	Electronically Operated Variable Refrigerant Flow Multi-Split Air Conditioners—Minimum Efficiency Requirements	The minimum EER values for cooling capacities ≥ 65 kBtu/h are less stringent in the 2026 FBC-EC compared to the 2023 FBC-EC values. However, the IEER values remain the same for all capacity range. The minimum efficiency VRF multi-split ACs, electric resistance or none heating type, and capacity range ≥ 65 kBtu/h and < 135 kBtu/h reduced to EER 10.5 from EER 11.0. The minimum efficiency requirement for VRF multi-split ACs, *electric resistance or none* heating type, and capacity range ≥ 135 kBtu/h and < 240 kBtu/h reduced to EER 10.3 from EER 11.0.

				The minimum efficiency requirement for VRF multi-split ACs, electric resistance or none heating type, and capacity range ≥ 240 kBtu/h reduced to EER 9.5 from EER 10.0.
Table C403.2.3(12)	Electronically Operated Variable Refrigerant Flow and Applied Heat Pumps—Minimum Efficiency Requirements	Table C403.2.3(12)	Electronically Operated Variable Refrigerant Flow and Applied Heat Pumps—Minimum Efficiency Requirements	The minimum efficiency air-cooled (cooling mode) VRF multi-split system for cooling capacity < 65 kBtu/h increased the stringency to SEER2 13.4 from SEER 13.0. The minimum efficiency requirement for an air-cooled (cooling mode) VRF multi-split system, *electric resistance or none* heating type, and cooling capacity range ≥ 65 kBtu/h and < 135 kBtu/h reduced to EER 10.3 from EER 11.0 while the IEER 14.6 remains the same. The minimum efficiency requirement for an air-cooled (cooling mode) VRF multi-split system with heat recovery, *electric resistance or none* heating type, and capacity range ≥ 65 kBtu/h and < 135 kBtu/h reduced to EER 10.1 from EER 10.8 while IEER 14.4 remains the same. The minimum efficiency requirement for an air-cooled (cooling mode) VRF multi-split system, *electric*

				resistance or none heating type, and capacity range ≥ 135 kBtu/h and < 240 kBtu/h reduced to EER 9.9 from EER 10.6 while IEER 13.9 increased to IEER 14.4. The minimum efficiency requirement for an air-cooled (cooling mode) VRF multi-split system with heat recovery, *electric resistance or none* heating type, and capacity range ≥ 135 kBtu/h and < 240 kBtu/h reduced to EER 9.7 from EER 10.4 while IEER 13.7 increased to IEER 13.9. The minimum efficiency requirement for an air-cooled (cooling mode) VRF multi-split system, *electric resistance or none* heating type, and capacity range ≥ 240 kBtu/h reduced to EER 9.1 from EER 9.5 while the IEER 12.7 remains the same. The minimum efficiency requirement for an air-cooled (cooling mode) VRF multi-split system with heat recovery, *electric resistance or none* heating type, and capacity range ≥ 240 kBtu/h reduced to EER 8.9 from EER 9.3 while the IEER 12.5 remains the same.

				The minimum efficiency of an air-cooled (heating mode) VRF multi-split system for capacity < 65 kBtu/h changed to HSPF2 7.5 from HSPF 7.7.
Table C403.2.3(13)	Vapor-Compression-based Indoor Pool Dehumidifier—Minimum Efficiency Requirements	Table C403.2.3(13)	Vapor-Compression-based Indoor Pool Dehumidifier—Minimum Efficiency Requirements	The minimum efficiency requirements are the same for the 2023 FBC-EC, and the 2026 FBC-EC, the 2024 IECC, and the 2022 ASHRAE 90.1. There is no federal minimum efficiency requirement source to verify.
Table C403.2.3(14)	Electronically Operated DX-DOAS Units, Single-Package and Remote Condenser, without Energy Recovery—Minimum Efficiency Requirements	Table C403.2.3(14)	Electronically Operated DX-DOAS Units, Single-Package and Remote Condenser, without Energy Recovery—Minimum Efficiency Requirements	Current minimum efficiency is the same as the federal minimum efficiency requirements.
Table C403.2.3(15)	Electronically Operated DX-DOAS Units, Single-Package and Remote Condenser, with Energy Recovery—Minimum Efficiency Requirements.	Table C403.2.3(15)	Electronically Operated DX-DOAS Units, Single-Package and Remote Condenser, with Energy Recovery—Minimum Efficiency Requirements.	Current minimum efficiency is the same as the federal minimum efficiency requirements.

Table C403.2.3(16)	Electronically Operate Water-Source Heat Pumps—Minimum Efficiency Requirements.	Table C403.2.3(16)	Electronically Operate Water-Source Heat Pumps—Minimum Efficiency Requirements.	The minimum efficiency requirements are the same as the 2023 FBC-EC, the 2024 IECC, and the 2022 ASHRAE 90.1, and the federal minimum. The federal minimum requirements apply to Water-to-air, and water loop only.
Table C403.2.3(17)	Ceiling-Mounted Computer-Room Air Conditioners—Minimum Efficiency Requirements.	Table C403.2.3(17)	Ceiling-Mounted Computer-Room Air Conditioners—Minimum Efficiency Requirements.	The minimum efficiency requirements for ceiling-mounted CRAC categories are the same as the 2023 FBC-EC, the 2024 IECC, the 2022 ASHRAE 90.1, and the federal minimum efficiency requirements.
C403.2.3.1	Water-cooled centrifugal chilling packages	C403.2.3.1	Water-cooled centrifugal chilling packages	Made editorial changes to the conde language and removed the text related to test flow rates.
-	-	C403.7	Boilers	Adds a new Section C403.7 with two requirements: (1) combustion air positive shutoff control for large boilers with capacity ≥ 2,500 kBtu/h and non-positive vent static pressure, and (2) newly installed boilers or boiler systems with a combustion air fan motor nameplate horsepower rating of ≥ 10hp must have either a variable speed fan motor or include controls that modulate fan airflow as a function of the load to a speed of 50% or less of design air volume.

-	-	C403.7.1	Boiler oxygen concentration controls	Adds new requirement for newly installed boilers with an input capacity ≥ 5,000 kBtu/h and operating at a minimum part-load ratio of 90% must maintain stack-gas maximum oxygen concentrations values specified in the new Table C403.7.1. Combustion air volume must be controlled with respect to measured flue gas oxygen concentration. And the use of a common gas and combustion air control linkage or jack shaft is prohibited. Where 50% or more of the boiler system capacity serves Group R-2 occupancies the concentration limits control requirement is exempted.
-	-	Table C403.7.1	Boiler Oxygen Concentrations	This new table specifies the maximum stack-gas oxygen concentration limits of boilers.
C403.2.3	HVAC equipment performance requirements	C403.2.3	HVAC equipment performance requirements	Deleted redundant text "*Plate-type liquid-to-liquid heat exchangers shall meet the minimum requirements of Table C403.2.3(10).*"
C403.3	Economizers (Prescriptive)	C403.3	Economizers (Prescriptive)	Adds a new cooling equipment efficiency metrics *SEER2* for air

				economizer requirement exemption in exception item #7.
C403.2.4	HVAC system controls	C403.2.4	HVAC system controls	Replaced the texts “Each Heating” with “Heating,” and “building envelope” with “Building thermal envelope” for clarity.
C403.2.4.1.2	Deadband	C403.2.4.1.2	Deadband	Edited, revised and rearranged the code provisions. Main changes include: (1) separate setpoints for heating and cooling, each individually adjustable, (2) capable of and initially configured to provide a minimum temperature range or deadband of 5°F between heating and cooling setpoints, and (3) have a minimum deadband of not less than 1°F (0.56°C) when setpoints are adjusted.
-	-	C403.8	Humidification and dehumidification controls	Adds new Section C403.8 for Humidity controls with new Subsections C403.8.1, C403.8.2, and C403.8.3 for Dehumidification, Humidification and Control interlock requirements, respectively.

-	-	C403.8.1	Dehumidification	Adds new requirement which says humidistat controls must not use mechanical cooling to reduce the humidity below the lower of a dew point of 55°F (13°C) or relative humidity of 60% in the coldest zone served by the system. Lower humidity is permitted where mechanical cooling is being used for temperature control. Exceptions may apply when the space served has a specific humidity level are required, such as museums and hospitals as required by application or code official.
-	-	C403.8.2	Humidification	Adds new requirement which says humidistat controls must not user fossil fuels or electricity to produce relative humidity above 30% in the warmest zone served by the system. Exceptions may apply depending on the controlled space applications by design or as permitted by a code official.

-	-	C403.8.3	Control interlock	Adds a new requirement which says a space served with humidification and dehumidification control capability must be provided with a means to prevent simultaneous operation of humidification and dehumidification equipment. Interlock control is exempted for system serving zones where humidity levels are required to be maintained with precision of not more than ±5% relative humidity to comply with applicable codes or accreditation standards or as approved by the authority having jurisdiction.
-	-	C403.9	Occupied standby controls	Adds a new occupied standby controls requirement in postsecondary classrooms, lecture rooms and training rooms, Conference/meeting/multipurpose rooms, Lounges/breakrooms, Enclosed offices, Open-plan office areas, and Corridors spaces. Exceptions apply in spaces that are part of a multiple-zone system without automatic zone flow control dampers.

-	-	C403.9.1	Occupied-standby zone controls	Adds a new section that requires occupied-standby mode zone control must be capable of doing within 5 minutes of going into this operating mode: • Set back the active heating setpoint by not less than 1°F (0.55°C). • Set up the active cooling setpoint by not less than 1°F (0.55°C). • Shut off supply airflow to zones whenever the space temperature is between the active heating and cooling setpoints. • Multiple-zone systems must comply with Section C403.9.1.1.
-	-	C403.9.1.1	Multiple-zone system controls	Adds new section that requires multiple-zone systems to automatically reset the effective minimum outdoor air setpoint, per Section C403.4.4.6, capable of resetting the effective minimum ventilation setpoint based on a zone ventilation air requirement of zero flow for all zones in occupied-standby mode. Sequences of operation for system outside air flow reset must comply with an approved method.

C403.2.6.1	Demand control ventilation	C403.2.6.1	Demand control ventilation	Revised and rearranged the provision such that single and multi-zones systems demand controlled ventilation requirements are separated into two: (1) spaces with ventilation are served by single-zone systems where an air-side economizer is provided in accordance with Section C403.3, and (2) multi-zone systems the space floor area threshold for demand control ventilation varies by climate zone. However, the floor area threshold for the exemption has increased and classified by climate zones in exception item #1. Also added new exception item #6.
C403.2.8	Kitchen exhaust systems	C403.2.8	Kitchen exhaust systems	Revised the code such that the demand control kitchen ventilation (DCKV) controls requirements apply to Type I exhaust hoods systems only. Also re-organized the code provision for clarity and requires: (1) kitchen exhaust hood systems serving Type I exhaust hoods must be provided with DCKV controls where a kitchen or kitchen/dining facility has a total Type I kitchen hood exhaust airflow rate greater than 5,000 cfm, (2) the exhaust systems must include controls

				necessary to modulate exhaust and replacement air system airflows in response to appliance operation and to maintain full capture and containment of smoke, effluent and combustion products during cooking and idle operation, and (3) each hood must be a factory-built commercial exhaust hood listed by a nationally recognized testing laboratory and must have a maximum exhaust rate as specified in a new Table C403.2.8. Modified exception item #1 and added a new exception.
-	-	Table C403.2.8	Maximum Net Exhaust Flow Rate, CFM per Linear Foot of Hood Length	Added a new table C403.2.8 that defines exhaust air flow rate limits.
C403.2.12.4	Fractional hp fan motors	C403.2.12.4	Fractional hp fan motors	Made minor editorial change.
C403.2.9.1.3	Condensation control	C403.2.9.1.3	Condensation control	Added a provision that says all sheet metal outside air ducts passing through conditioned space in Climate Zone 1A must be insulated to prevent condensation on the interior of the duct.
C403.2.12.3	Fan efficiency	C403.2.12.3	Fan efficiency	Updated the reference standards that define the test procedure and

				how the Fan Energy Index (FEI) are calculated.
C403.2.12.6	Large-diameter ceiling fans	C403.2.12.6	Large-diameter ceiling fans	Replaced the reference standards for testing by DOE 10 CFR 430 Appendix U to Subpart B, instead of AMCA 230.
Table C403.2.12.6	Ceiling Fan Efficiency Requirements	Table C403.2.12.6	Ceiling Fan Efficiency Requirements	Updated the table by removing the large-diameter ceiling fan for outside the US application entry.
C403.2.12.6.1	Ceiling Fan Energy Index (CFEI)	C403.2.12.6.1	Ceiling Fan Energy Index (CFEI)	Replaced the reference standards by AMCA 230 and removed the text that references air flow rate and static pressure used for the testing.
-	-	C403.2.12.8	Air Circulating Fans	Adds new section that defines the testing requirements for air circulating fans with input power ≥ 200W at maximum speed and minimum efficiency requirements for air circulating fan.
-	-	Table C403.2.12.8	Air Circulating Fan Efficiency Requirements	Adds new table that specifies the minimum efficiency requirements of air circulating fan.
Table C403.2.12.7	Low-Capacity Ventilation Fan	Table C403.2.12.7	Low-Capacity Ventilation Fan	Updates the table by adding new system type for “balance ventilation system with heat or energy recovery” and modified the bathroom ventilation fan entry by dividing them into three categories by flow rate range.

-	-	C403.2.12.5.4	Intermittent exhaust control for bathrooms and toilet rooms	Adds a new section that defines the exhaust control requirements of intermittently operated bath and toilet rooms including provisions with manual on capability, timer control, occupant sensor control, humidity control and contaminant control capabilities. Bathroom and toilet room exhaust systems serving as an integral component of an outdoor air ventilation system in Group R-2, R-3 and R-4 occupancies are not required to have manual on capability and must not use an off setpoint control as alternative to comply with a minimum setpoint requirement.
-	-	C403.2.15	Buildings with high-capacity space-heating gas boiler systems	Adds a new section that requires gas fired hot water boiler systems for space heating application with capacity range 1 - 10 MBtu/h in new buildings to comply with subsections C403.2.15.1 and C403.2.15.2. And increases the stringency of gas-fired hot water condensing boilers and has four exceptions.

		C403.2.15.1	Boiler efficiency	Adds new section that requires high capacity space-heating gas-fired hot water boilers must have a thermal efficiency of at least 90% rated in accordance with the test procedures in table C403.2.3(5).
		C403.2.15.2	C403.2.15.2 Hot water distribution system design	Adds new section that requires the hot water distribution system must be designed to meet (1) at the design conditions the hot water return temperature entering the boilers must be ≤ 120°F, and (2) under all operating conditions, the water temperature entering the boiler must be ≤ 120°F or the flow rate of supply hot water that recirculates directly into the return system.
Table C403.2.14.2(1)	Walk-In Cooler and Freezer Display Door Efficiency Requirements	Table C403.2.14.2(1)	Walk-In Cooler and Freezer Display Door Efficiency Requirements	Lits the standard used for the test procedures.
Table C403.2.14.2(2)	Walk-In Cooler and Freezer NonDisplay Door Efficiency Requirements	Table C403.2.14.2(2)	Walk-In Cooler and Freezer NonDisplay Door Efficiency Requirements	Lits the standard used for the test procedures.
Table C403.2.14.2(3)	Walk-In Cooler and Freezer Refrigeration Systems Efficiency	Table C403.2.14.2(3)	Walk-In Cooler and Freezer Refrigeration Systems Efficiency Requirements	Removed a typo in the table heading.

	Requirements (CE126-16AM)			
Section C404—Service Water Heating (Mandatory)				
Table C404.2	Minimum Performance of Water-Heating Equipment	Table C404.2	Minimum Performance of Water-Heating Equipment	The minimum efficiency requirement of water-heating equipment in the 2023 FBC and the 2026 FBC Supplemental document remain the same.
-	-	Table C404.2.1	Draw Patterns	Adds a new Table that defines the very small, low, medium and high hot water draw patterns flow ranges, obtained from test procedure standard 10 CFR Part 430.
C404.5	Efficient heated water supply piping	-	-	Deleted Section C404.5.
C404.5.1	Maximum allowable pipe length method	-	-	Deleted Subsection C404.5.1.
Table C404.5.1	Piping Volume and Maximum Piping Lengths	-	-	Deleted Table C404.5.1.
C404.5.2	Maximum allowable pipe volume method	-	-	Deleted Subsection C404.5.2.
C404.5.2.1	Water volume determination	-	-	Deleted Subsections C404.5.2.1.

Table C404.5.2.1	Internal Volume of Various Water Distribution Tubing	-	-	Deleted Table C404.5.2.1.
Section C405—Electrical Power and Lighting Systems				
C405.2	Lighting controls (Mandatory)	C405.2	Lighting controls (Mandatory)	Revised and rearranged the provision such that lighting systems in interior parking areas must be provided with controls that comply with Section C405.2.8. All other lighting systems powered through the energy service for the building and building site must be provided with controls that comply with Sections C405.2.1 through C405.2.7. Edited the existing lighting controls exceptions for clarity and add two new exceptions: • Emergency lighting required by the Florida Building Code, building in exit access components that are not provided with fire alarm systems. • Up to 0.02 W/ft^2 of lighting in exit access components that are provided with fire alarm systems.

C405.2.2	Time-switch controls	C405.2.2	Time-switch controls	Removed the time-switch controls requirement exceptions (items #3, #4, and #5) from the following spaces and applications: • Spaces where an automatic shutoff would endanger occupant safety or security. Note that this exception is already permitted in the main Section C405.2 • Lighting intended for continuous operation • Shop and laboratory classrooms
C405.2.4.2	Sidelit zone	C405.2.4.2	Sidelit daylight zone	Added lighting control requirements for the secondary sidelit daylight zone area and changes the code language to differentiate primary and secondary sidelit daylight zone area. Modified the section heading by adding the text “daylight.”
Figure C405.2.4.2(1)	Sidelit zone	Figure C405.2.4.2(1)	Primary and secondary Sidelit daylight zone	Modified the figure heading and updated the figure to depict the primary and secondary sidelit daylight zone areas.

C405.2.5	Specific application controls	C405.2.5	Specific application controls	Revised the specific application lighting control section by modifying requirement item #1, removing requirements items #2 and #3, and adding a new requirement. • Removed specific application controls requirements of luminaires in sleeping units and permanently installed luminaires in dwelling units from this section. • Added a new requirement that says lighting integrated into range hoods and exhaust fans must be controlled independently of the exhaust fans.
C405.2.7	Exterior lighting controls	C405.2.7	Exterior lighting controls	Edited exception item #1 to say, "lighting for covered vehicle entrances to buildings where required for eye adaptation."
C405.2.7.2	Building facade and landscape lighting	C405.2.7.2	Building facade and landscape lighting	Replaced the "*business*" by *"building or business"* such that building façade and landscape lighting control time to apply to the building or the business.

C405.2.7.3	Lighting setback	C405.2.7.3	Lighting setback	Replaced the "*business*" by *"building or business"* such that building façade and landscape lighting control time to apply to the building or the business in the code language requirement item #1. Replaced the text "*outdoor*" by *"exterior"* for clarity and increased the stringency of exterior parking garage luminaire rated input wattage threshold to 40W from 78W in requirement item #2.
C405.2.8	Parking garage lighting control	C405.2.8	Interior parking area lighting control	Modified the section heading and edited the code language for clarity. No change in the code stringency.
C405.3.1	Total connected interior lighting power	C405.3.1	Total connected interior lighting power	Revised and edited the space and space application types that must be included in the total connected interior lighting power calculation. • Removed the television broadcast lighting for playing areas in sports arenas and casino gaming areas • Added lighting in sleeping units and dwelling units and exit access and exit stairways, including landings, where the applicable code requires an illuminance of 10 footcandles or

				more on the walking surface, the power more than the allowed power calculated according to Section C405.3.2.2 is not included.
Table C405.3.2(1)	Interior Lighting Power Allowances: Building Area Method	Table C405.3.2(1)	Interior Lighting Power Allowances: Building Area Method	Increased the stringency of interior lighting requirement by reducing LPD allowances of the building area method in Table C405.3.2(1).
C405.3.2.2	Space-by-Space Method	C405.3.2.2	Space-by-Space Method	Modified and edited the code language to clarify how the lighting space types are determined from Table C405.3.2(2) and clarified how to map the space types when not listed in this table.
Table C405.3.2(2)	Interior Lighting Power Allowances: Space-by-Space Method	Table C405.3.2(2)	Interior Lighting Power Allowances: Space-by-Space Method	Increased the stringency of interior lighting requirement by reducing LPD allowances of the space-by-space method in Table C405.3.2(2).
C405.3.2.2.1	Additional interior lighting power	C405.3.2.2.1	Additional interior lighting power	Updates reference to code section C405.2.5 Specific application controls.
Table C405.4.2(2)	Lighting power allowances for building exteriors	Table C405.4.2(2)	Lighting power allowances for building exteriors	Increased the stringency of the building exterior lighting requirement by reducing the lighting power allowances for building exteriors. The lighting power allowances were reduced for most of the building exterior surface lighting categories.

C405.6	Electrical transformers (Mandatory)	C405.6	Electrical transformers (Mandatory)	Updated and edited the electric transformers exempted in accordance with the DOE definition of Distribution Transformers found in 10 CFR 431.192.
Table C405.6	Minimum Nominal Efficiency Levels for DOE 10 CFR 431 Low-Voltage Dry-Type Distribution Transformers	Table C405.6	Minimum Nominal Efficiency Levels for DOE 10 CFR 431 Low-Voltage Dry-Type Distribution Transformers	Updates the footnotes but the transformers' efficiency levels remain the same.
C405.7	Electric motors (Mandatory)	C405.7	Electric motors (Mandatory)	Adds "Definite-purpose machines within the scope of ANSI/NEMA MG 1, Part 18" to the exemption list.
-	-	C405.10	Data centers and computer rooms	Adds a new section that requires electrical equipment in data centers and computer rooms to comply with ASHRAE Standard 90.4.
-	-	C405.10.1	Data centers	Adds a new subsection that requires transformers, uninterruptable power supplies, motors and electrical power processing equipment in data centers to comply with Section 8 of ASHRAE Standard 90.4 in addition to this code.

-	-	C405.10.2	Computer rooms	Adds a new subsection that requires uninterruptable power supplies in computer rooms to comply with the requirements in tables 8.5 and 8.6 of ASHRAE 90.4 in addition to this code. An AC-output UPS that utilize standardized NEMA 1-15P or NEMA 5-15P input plug, as specified in ANSI/NEMA WD-6 are exempted.
Section C406—Additional Efficiency, Renewable and Load Management Requirements				
C406	Additional Efficiency Package Options	C406	Additional Efficiency, Renewable and Load Management Requirements	Deleted and replaced Section C406 with extensively revised, expanded the measures, added required and achievable energy credit requirements, and added new implementation procedures. Modified the section heading to reflect the substantial changes. There are a total of 39 additional efficiency measures, grouped the measures and energy credits by building occupancy group and climate zones. There are also new energy credits requirements for renewable and load management systems. Introduces a revised energy credits calculation procedure for each existing and new measures

				and allows exceptions based on conditioned floor area size and building construction status.
C406.1	Requirements	C406.1	Requirements	Compliance with this section may follow one of the following paths: • Buildings with > 2,000 ft^2 of conditioned floor area must comply with Section C406.1.1 • Buildings with > 5,000 ft^2 of conditioned floor area must comply with Sections C406.1.1 and C406.1.2. • Build-out construction > 1,000 ft^2 of conditioned floor area that does not have final lighting or final HVAC systems installed under a prior building permit must comply with Section C406.1.1.2. Core and shell buildings where ≥ 20% net floor area is without final lighting, or final HVAC must comply with all the following: • Buildings with > 5,000 ft^2 of conditioned floor area must comply with Section C406.1.2. • Portions of the building where the net floor area is without final

				lighting or final HVAC must comply with Section C406.1.1.2. • Portions of the building where the net floor area has final lighting and final HVAC systems must comply with Section C406.1.1.
-	-	C406.1.1	Additional energy efficiency credit requirements	Buildings must comply with measures from Section C406.2 to achieve not less than the number of required efficiency credits from Table C406.1.1(1) based on building occupancy group and climate zone. Buildings with multiple occupancies, the total required energy credits from each building occupancy must be weighed by the gross conditioned floor area. Accessory occupancies must be included with the primary occupancy group for the purposes of Section C406; however, the following exceptions are allowed: • manufacturing or industrial use portion of a building. • Where a building achieves more renewable and load management credits in Section C406.3 than are required in Section C406.1.2, the surplus credits must be

				permitted to reduce the required energy efficiency credits.
-	-	Table C406.1.1(1)	Energy Credit Requirements by Building Occupancy Group	Adds a new table that defines the energy credit requirements by building occupancy group and climate zones. Compliance with Section C406 requires the energy credits achieved (realized) by a building or a project must exceed the credits requirement from table C406.1.1(1).
-	-	Table C406.1.1(2)	Limit to Energy Efficiency Credit Carryover from Renewable and Load Management Credits	Adds new table the defines the surplus renewable and load management credit limit. This credits limit is used to adjust the achievable energy credit from renewable and load management measures.
-	-	C406.1.1.1	Reserved	Reserved for later use.
-	-	C406.1.1.2	Building core/shell and build-out construction	Adds new compliance requirement where a separate project permit is issued for core and shell buildings and build-out construction. There are three different provisions when a core and shell building project must comply with this section.

-	-	C406.1.2	Additional renewable and load management credit requirements	The new section specifies credits requirement for additional renewable and load management measures or programs. Buildings must comply with measures from Section C406.3 to achieve not less than the required renewable and load management credits from Table C406.1.2. Project with multiple occupancies group, must weigh the credits from Table C406.1.2 by the gross floor area of each occupancies group to determine the required energy credits. Where a project achieves more energy efficiency credits in Section C406.2 than are required in Section C406.1.1, the renewable and load management credits required in Table C406.1.2 must be reduced by the amount of surplus energy efficiency credits in Table C406.1.1(2).
-	-	Table C406.1.2	Renewable and Load Management Credit Requirements by Building Occupancy Group	Adds new table that specifies the renewable and load management credits required.

-	-	C406.2	Additional energy efficiency credits achieved	This new section requires each energy credit measure used to meet credit requirements of a given project must have efficiency that exceeds the requirements in Sections C402 through C405. Measures installed in the project that meet the requirements in Sections C406.2.1 through C406.2.6 must achieve the base credits listed for the measure and occupancy type in Tables C406.2(1) through C406.2(9) or, where calculations are required by Sections C406.2.1 through C406.2.6, adjust the table credits based on the calculations. Energy credits achieved for measures must be determined by one of the following, as applicable: • The measure's energy credit must be the base energy credit from Tables C406.2(1) through C406.2(9) for the measure where no adjustment factor or calculation is included. • The measure's energy credit must be the base energy credit for the measure adjusted by a factor or equation as stated in the description of the measure.

				Energy credits achieved for the project must be the sum of the individual measure's energy credits. Where a project contains multiple building occupancy groups: • Credits achieved for each occupancy group must be summed up and then weighed up by the conditioned floor area of each occupancy group to determine the weighted average project energy credits achieved. • Improved envelope efficiency (E01 through E06), HVAC performance (H01) and lighting reduction (L06) measure credits must be determined for the building or permitted entire conditioned floor area. Credits for other measures must be determined for each occupancy separately and aggregated.
-	-	Table C406.2(1)	Base Energy Credits for Group R-2, R-4 and I-1 Occupancies	Adds new table that specifies the base energy credits for group R-2, R-4 and I-1 occupancies by measure and climate zone.
-	-	Table C406.2(2)	Base Energy Credits for Group I-2 Occupancies	Adds new table that specifies the base energy credits for group I-2 occupancies by measure and climate zone.

-	-	Table C406.2(3)	Base Energy Credits for Group R-1 Occupancies	Adds new table that specifies the base energy credits for group R-1 occupancies by measure and climate zone.
-	-	Table C406.2(4)	Base Energy Credits for Group B Occupancies	Adds new Table C406.2(4). This table contains the base energy credits for group B occupancies by measure and climate zone.
-	-	Table C406.2(5)	Base Energy Credits for Group A-2 Occupancies	Adds new table that specifies the base energy credits for group A-2 occupancies by measure and climate zone.
-	-	Table C406.2(6)	Base Energy Credits for Group M Occupancies	Adds new table that specifies the base energy credits for group M occupancies by measure and climate zone.
-	-	Table C406.2(7)	Base Energy Credits for Group E Occupancies	Adds new table that specifies the base energy credits for group E occupancies by measure and climate zone.
-	-	Table C406.2(8)	Base Energy Credits for Group S-1 and S-2 Occupancies	Adds new table that specifies the base energy credits for group S-1 and S-2 occupancies by measure and climate zone.
-	-	Table C406.2(9)	Base Energy Credits for Other Occupancies	Adds new table that specifies the base energy credits for other 9ccupancies by measure and climate zone.

-	-	C406.2.1	More efficient building thermal envelope	Adds new requirement for a more efficient building thermal envelope measure. A project must achieve credits for improved envelope performance by complying with one of the following measures: E01, E02, E03, combined E02 and E03, or any combinations of E03, E04, E05, and E6.
-	-	C406.2.1.1	E01 Improved envelope performance ASHRAE 90.1AppendixC	Adds new requirement for an improved building thermal envelope must be installed to enhance the energy performance of the project. The energy credits achieved must be calculated using base and proposed envelope performance factors obtained from ASHRAE 90.1.
-	-	C406.2.1.2	E02 Component performance envelope reduction	Adds a new requirement for component performance envelope reduction. Energy credits must be achieved where the component performance of the building thermal envelope as designed not less than 15% below the component performance of thermal envelope requirements of section C402.1.4.
-	-	C406.2.1.3	E03 Reduced air leakage	This new section requires energy credits must be achieved where tested building air leakage is not less than 10% of the maximum leakage

				permitted by Section C402.5.1.2, provided that the building is tested in accordance with the applicable method in Section C402.5.1.2. Energy credits achieved for reduced air leakage measure E03 must be determined using the equation provided.
-	-	C406.2.1.4	E04 Added roof insulation	This new section requires energy credits must be achieved for insulation, which is in addition to the required insulation in Table C402.1.3. All roof areas in the project must have additional R-10 continuous insulation included in the roof assembly. For attics, this is permitted to be achieved with fill or batt insulation rated at R-10 that is continuous and not interrupted by ceiling or roof joists. Where interrupted by joists, the added insulation must be ≥ R-13.
-	-	C406.2.1.5	E05 Added wall insulation	This new section requires energy credits must be achieved for insulation applied to not less than 90% of all opaque wall area in the project that is in addition to the required insulation in Table C402.1.3. Opaque walls must have additional R-5 continuous insulation included in the wall assembly.

				Alternatively, one-half of the base credits must be achieved where the added R-value is R-2.5.
-	-	C406.2.1.6	E06 Improve fenestration	Adds new requirement for fenestration to achieve energy credits for improved energy characteristics of all vertical fenestration in the project meeting the requirements in Table C406.2.1.6. The area-weighted average *U-factor*, and *SHGC* of all vertical fenestration must be equal to or less than those in this table.
-	-	Table C406.2.1.6	Vertical Fenestration Requirements for Energy Credit E06	Adds new requirement for maximum *U-factor*, maximum *SHGC* and minimum *VT* requirements by climate zones for energy credit measure E06.
-	-	C406.2.2	More efficient HVAC equipment performance	This new section requires that all heating and cooling systems must meet the minimum requirements of Section C403, and efficiency improvements must be referenced to minimum efficiencies listed in tables referenced by Section C403.2.3. Where multiple efficiency requirements are listed, equipment must meet the seasonal or part-load efficiencies including SEER, integrated energy efficiency ratio

				(IEER), integrated part load value (IPLV) or AFUE, and the improvement must be the weighted-average improvement based on individual system capacity. Systems are permitted to achieve HVAC energy credits by meeting the requirements of one of the following: H01, H02, H03, H04, H05, any combination of H02, H03, H04 and H05, or combination of H01 and H04.
-	-	C406.2.2.1	H01 HVAC Total System Performance Ratio (TSPR)	Adds a new section requires that measure H01 energy credits must be earned where systems are permitted to use a new Section C409 and where the savings (TSPRs) based on the proposed TSPR compared to the target TSPR is ≥ 5%. If savings are > 5%, determine H01 earned credits using Equation 4-15. Energy credits for H01 must not be combined with energy credits from HVAC measures H02, H03 or H05. Section C409 is a new optional HVAC compliance method.

-	-	C406.2.2.2	H02 More efficient HVAC equipment heating performance	This new section requires that larger than or equal to 90% of the total HVAC heating capacity serving the total conditioned floor area of the entire building or tenant space must comply with the requirements of this section. Equipment installed must be types that have their efficiency listed in tables referenced by Section C403.2.3. Electric resistance heating capacity must be limited to 20% of system capacity, except for heat pump supplemental heating. Equipment must exceed the minimum heating efficiency requirements listed in tables referenced by Section C403.2.3 by ≥ 5%. If equipment exceeds the minimum annual heating efficiency requirements by ≥ 5%, energy efficiency credits for heating must be determined using the equation in this section. It has exceptions for low-energy spaces.
-	-	C406.2.2.3	H03 More efficient HVAC cooling equipment and fan performance	This new section requires not less than 90% of the total HVAC cooling capacity, serving the total conditioned floor area of the entire building or tenant space must comply with all the requirements of this section.

				• Equipment installed must be types that are listed in tables referenced by Section C403.2.3. • Equipment must exceed the minimum cooling efficiency requirements listed in tables referenced by Section C403.2.3 by not less than 5%. For water cooled chiller plants, heat-rejection equipment performance in Table C403.2.3(8) must also be increased by at least the chiller efficiency improvement.
-	-	C406.2.2.4	H04 Residential HVAC control	This new section requires that HVAC systems serving dwelling units or sleeping units must be controlled to automatically activate a setback at least 5°F (3°C) for both heating and cooling. The temperature controller must be configured to provide setbacks during occupied sleep periods. The unoccupied setback mode must be configured to operate in conjunction with one of the following: (1) a manual main control device by each dwelling unit, (2) occupancy sensors in each room of the dwelling unit combined with a door switch, (3) an advanced learning thermostat or controller that recognizes occupant presence

				and automatically creates a schedule for occupancy and provides a dynamic setback schedule based on when the spaces are generally unoccupied, or (4) an automated control and sensing system that uses geographic fencing connected to the dwelling unit occupants' cell phones and initiates the setback condition when all occupants are away from the building.
-	-	C406.2.2.5	H05 Dedicated outdoor air system	This new section requires credits for this measure are allowed only where single-zone HVAC units are not required to have multispeed or variable-speed fan control in accordance with Section C403.2.12.5. HVAC controls and ventilation systems must include all the following: • Zone controls must cycle the heating/cooling unit fans off when not providing required heating and cooling or must limit fan power to 0.12 watts/cfm of zone supply air. • Outdoor air must be supplied by an independent ventilation system designed to provide not more than 130% the minimum outdoor air to each individual

				occupied zone, as specified by the IMC. • The ventilation system must have energy recovery with an enthalpy recovery ratio of ≥ 65% at heating design conditions in Climate Zones 3 through 8 and an enthalpy recovery ratio of ≥ 65% at cooling design conditions in Climate Zones 0, 1, 2, 3A, 3B, 4A, 4B, 5A and 6A. In “A” climate zones, energy recovery must include latent recovery. Where energy recovery effectiveness is less than the 65% required for full credit, adjust applies. • Where the ventilation system serves multiple zones and the system is not in a latent recovery outside air dehumidification mode, partial economizer cooling through an outdoor air bypass or wheel speed control must automatically (1) set the energy recovery leaving-air temperature 55°F or 100% outdoor air bypass when a majority of zones require cooling and outdoor air temperature is below 70°F, or (2) the HVAC ventilation system must include supply-air temperature

				controls that automatically reset the supply-air temperature in response to representative building loads, or to outdoor air temperatures. • Ventilation systems providing mechanical dehumidification must use recovered energy for reheat within the limits of Item 4.
-	-	Table C406.2.2.5	DOAS Energy Recovery Adjustments	This new section requires that the DOAS energy recovery adjustment be based on the lower of actual cooling or heating enthalpy recovery ratio or sensible energy recovery ratio.
-	-	C406.2.3	Reduced energy use in service water heating	This new section requires that projects with service water heating equipment serving the whole building, a building addition or a tenant space must achieve credit through compliance with this section. Systems are permitted to achieve energy credits meeting the requirements by selecting one allowed measures W01, W02, W03, through W10 or a combination of them.

-	-	C406.2.3.1	Service water heating system efficiency	This section permits project to achieve energy credits from only one of Sections C406.2.3.1.1 through C406.2.3.1.4.
-	-	C406.2.3.1.1	W01 Recovered or renewable water heating	This section requires service water-heating system must have one or more of the following that are sized to provide ≥ 30% of the building's annual hot water requirements, or sized to provide ≥ 70% of the building's annual hot water requirements if the building is required to comply with Section C403.4.5: • waste heat recovery from service hot water, heat recovery chillers, building equipment or process equipment. • a water-to-water heat pump that precools chilled water return for building cooling while heating SHW. • on-site renewable energy water-heating systems.

-	-	C406.2.3.1.2	W02 Heat pump water heater	This section requires air-source heat pump water heaters to be installed according to the manufacturer's instructions and at least 30% of design end-use SWH requirements must be met using only heat pump heating at an ambient condition of 67.5°F DB without supplemental electric resistance or fossil fuel heating. For a heat pump water heater with supplemental electric resistance heating, the heat pump-only capacity must be at 40% of first-hour draw. Where the heat pump-only capacity exceeds 50% of the design end-use load, excluding recirculating system losses, the credits must be prorated by this section.
-	-	C406.2.3.1.3	W03 Efficient fossil fuel water heater	The new section requires that combined input-capacity weighted-average equipment rating of all gas water heating equipment in the building must be ≥ 95% thermal efficiency or 0.93 UEF. Adjustments must apply as follows: • Where the service water heating system is required to comply with Section C404.2.1, this measure must achieve 30% of the listed base W03 energy

				credits in Tables C406.2(1) through C406.2(9). • Where the installed service water heating capacity < 200 kBtu/h and weighted UEF is < 0.93 UEF and ≥ 0.82, this measure must achieve 25% of the base W03 credit in Tables C406.2(1) through C406.2(9).
-	-	C406.2.3.1.4	Combination service water heating systems	This new section requires service water heating systems to achieve credits using one of the measure combinations of W01 and W02, W01 and W03, or W02 and W03.
-	-	C406.2.3.2	W04 Service hot water piping insulation increase	This new section requires that service-hot-water provided by a central water-heating system, the hot water pipe insulation thickness must be at least 1.5 times the thickness required in Section C404.4. All service hot water piping must be insulated from the hot water source to the fixture shut-off. Where ≥ 50% of hot water piping does not have increased insulation due to installation in partitions, the credit must be prorated as a percentage of lineal feet of piping with increased insulation.

-	-	C406.2.3.3	Service water-heating distribution temperature maintenance	This new section permits a project to claim energy credits from only one of the three SHW distribution temperature maintenance measures depending on the building floor area, occupancy group and hot water return temperature: • W05 Point of use water heaters • W06 Thermostatic balancing valves • W07 Heat trace system
-	-	C406.2.3.4	W08 Water-heating system submeters	This new section requires each individual dwelling unit in a Group R-2 occupancy served by a central service water heating system to be provided with a service hot water meter connected to a reporting system that provides individual dwelling unit reporting of actual domestic hot water use. Preheated water serving the cold-water inlet to showers need not be metered.
-	-	C406.2.3.5	W09 Service hot water flow reduction	This new section requires dwelling unit, sleeping unit and guestroom plumbing fixtures that are connected to the service water-heating system to have a flow or consumption rating less than or equal to the values shown in Table C406.2.3.5.

-	-	Table C406.2.3.5	Maximum Flow Rating for Residential Plumbing Fixtures with Heated Water	Adds new table that specifies the maximum flow ratings for residential plumbing fixtures with heated water.
-	-	C406.2.3.6	W10 Shower drain heat recovery	This new section requires cold water serving building showers to be preheated by shower drain heat recovery units that comply with Section C404.8. The efficiency of drain heat recovery units must be ≥ 54% of the value measured in accordance with CSA B55.1. Full credits are applicable for the following building uses: I-2, I-4, R-1, R-2 and Group E where there are more than eight showers. Partial credits are applicable to buildings where all but ground floor showers are served, the base energy credit from Section C406.2 is adjusted.

-	-	C406.2.4	P01 Energy monitoring	This new section requires a project can achieve energy credits for installing an energy monitoring system that complies with the requirements of Sections C406.2.4.1 through C406.2.4.5, and Table C406.2.4.2. It has electrical metering, metering categories, electrical meters, data acquisition and reporting requirements.
-	-	C406.2.5	Energy savings in lighting systems	This new section permits Projects to achieve energy credits for increased lighting system performance by meeting the requirements of one of the following: L02, L03, L04, L05, L06, any combination of L03, L04, L05 and L06, or any combination of L02, L03 and L04.
-	-	C406.2.5.1	L01 Lighting system performance (reserved)	Reserved for future use.
-	-	C406.2.5.2	L02 High-end trim lighting controls	This new section requires high-end trim lighting controls credits must be achieved where qualifying spaces are ≥ 50% of the project interior floor area exclusive of dwelling and sleeping units qualifying spaces are those where general lighting is controlled by high-end trim lighting

				controls complying with the following: • Calibration adjustment equipment is located for ready access by authorized personnel • Lighting controls with ready access for users cannot increase the lighting power above the maximum level established • Construction documents must state that maximum light output or power of general lighting in spaces contributing to the qualifying floor area must be ≤ 85% of full power or light output. • High-end trim lighting controls must be tested in accordance with Section C406.2.5.2.1.
-	-	C406.2.5.3	L03 Increase occupancy sensor	This new section requires increased lighting occupancy sensors to comply with occupancy sensor controls, functions, and setpoints.
-	-	C406.2.5.3.1	Occupant sensor controls	This new provision permits installing increased occupancy sensor lighting controls in 23 different lighting space types listed in this section.

-	-	C406.2.5.3.2	Occupant sensor control function	This new section requires occupant sensors in library stacks and laboratories must comply with Section C405.2.1.2, occupant sensors in elevator lobbies must comply with Section C405.2.1.4, and all other occupant sensors required by Section C406.2.5.3.1 must comply with Section C405.2.1.1. Exceptions apply in spaces where an automatic shutoff could endanger occupant safety or security, but occupant sensor controls must uniformly reduce lighting power to not more than 20% of full power. Time-switch controls are allowed.
-	-	C406.2.5.3.3	Occupant sensor time delay and setpoint	Adds new section that requires occupant sensor controls installed in accordance with Sections C405.2.1.1, C405.2.1.2, C405.2.1.3 and C405.2.1.4 must automatically turn off lights or reduce lighting power within 10 minutes after all occupants have left the space. Occupant sensor controls installed in accordance with section C405.2.1.2 must have an unoccupied setpoint of ≤ 20% of full power.

-	-	C406.2.5.4	L04 Increased daylight area	Adds new section that requires the total daylight area of the building determined by equation 4-22 in this Section to be ≥ 5% the typical daylight area from Table C406.2.5.4. Credits for measure L04 must be determined by the lesser of equation 4-23 or 4-24.
-	-	Table C406.2.5.4	Added Daylighting Parameters	Adds new table that defines the extra building daylight floor area allowed.
-	-	C406.2.5.5	L05 Residential light control	Adds new section that requires buildings with Group R-2 occupancy spaces, interior lighting systems to comply with the following: • In common areas such as Laundry/washing areas, Dining areas, Food preparation areas, Seating areas, Exercise areas, and Massage spaces, the following space types must have occupant sensor controls that comply with the requirements of Section C405.2.1.1. • In dwelling units with at least one receptacle in each living room and each sleeping room must be controlled by a switch in that room.

				• Lights and switched receptacles in bathrooms and kitchens must be controlled by an occupant sensor complying with Section C405.2.1.1.
-	-	C406.2.5.6	L06 Reduced lighting power	Adds new section requires interior lighting within all building areas to comply with this section. • The connected interior lighting power (LP) determined in accordance with Section C405.3.1 must be ≤ 95% of interior lighting power allowance determined in accordance with Section C405.3.2 using the same method used to comply with Section C405.3. Energy credits must not be greater than four times the L06 base credit from Section C406.2 and must be determined using equations in this section. • All permanently installed lighting serving dwelling units and sleeping units, including ceiling fan light kits and lighting integrated into range hoods and exhaust fans must be provided by lamps with an efficacy of ≥ 90 lumens/watt or by luminaires that have an efficacy of ≥ 65

				lumens/watt. Exceptions apply to lighting integral to other appliances, and antimicrobial lighting used for the sole purpose of disinfecting.
-	-	C406.2.6	Efficient equipment credits	Adds new section allows projects to achieve energy credits using any combination of Efficient Equipment Credits Q01 through Q04.
-	-	C406.2.6.1	Q01 Efficient elevator equipment.	Adds new section requires qualifying elevators on three or more floors above grade building to achieve energy credits. Credits must be prorated based on equation in this section and rounded to the nearest whole credit. Projects with a compliance ratio below 0.5 do not qualify for this credit.
-	-	C406.2.6.2	Q02 Efficient commercial kitchen equipment	Adds new section requires that buildings and spaces designated as Group A-2, or facilities whose primary business type involves the use of a commercial kitchen where at least one gas or electric fryer, all fryers, dishwashers, steam cookers and ovens installed before the issuance of the certificate of occupancy must comply with performance levels in accordance with the equipment specifications

				listed in Tables C406.2.6.2(1) through C406.2.6.2(4) and based on the performance levels in construction documents.
-	-	Table C406.2.6.2(1)	Minimum Efficiency Requirements: Commercial Fryers	Adds new table for minimum efficiency requirement of commercial fryer.
-	-	Table C406.2.6.2(2)	Minimum Efficiency Requirements: Commercial Steam Cookers	Adds new table for minimum efficiency requirement of commercial steam cookers.
-	-	Table C406.2.6.2(3)	Minimum Efficiency Requirements: Commercial Dishwashers	Adds new table for minimum efficiency requirement of commercial dishwashers.
-	-	Table C406.2.6.2(4)	Minimum Efficiency Requirements: Commercial Ovens	Adds new table for minimum efficiency requirement of commercial ovens.

-	-	C406.2.6.3	Q03 Efficient residential kitchen equipment	Adds new section that requires projects with Group R-1 and R-2 occupancies, energy credits must be achieved where all dishwashers, refrigerators and freezers achieved Energy Star Most Efficient 2021 label and installed before the issuance of the certificate of occupancy. For Group R-1 where only some guestrooms are equipped with both refrigerators and dishwashers, the table credits must be prorated per the equation in this section.
-	-	C406.2.6.4	Q04 Fault detection and diagnostics system	This new section allows a project to achieve energy credits for installing fault detection and diagnostics system for monitoring the HVAC system's performance and automatically identify faults. The installed fault detection and diagnostics system must comply with subsection C406.2.6.4.1.
-	-	C406.2.6.4.1	Fault detection and diagnostics	This new section requires fault detection and diagnostic systems in buildings with a gross conditioned floor area of not less than 100,000 ft^2 served by one or more HVAC systems that are controlled by direct digital control (DDC).

-	-	C406.3	Renewable and load management credits achieved	This new section permits renewable energy and load management to achieve credit using measures installed in the building that comply with Sections C406.3.1 through C406.3.8. • Measure credit must be the base credit listed by occupancy group and climate zone. • Load management and renewable credits achieved for the project must be the sum of credits for individual measures included in the project. • Where a project contains multiple building use groups, credits achieved must be gross floor area-weighted. • Load management measures G01 through G06 require load management control sequences that are capable of and configured to automatically provide the load management operation specified based on indication of a peak period related to high short-term electric prices, grid condition or peak building load.

-	-	Table C406.3(1)	Renewable and Load Management Credits for Group R-2, R-4 AND I-1 Occupancies	This new table defines the renewable and load Management credits for group R-2, R-4 AND I-1 Occupancies
-	-	Table C406.3(2)	Renewable and Load Management Credits for Group I-2 Occupancies	This new table defines the renewable and load Management credits for group I-2 occupancies.
-	-	Table C406.3(3)	Renewable and Load Management Credits for Group R-1 Occupancies	This new table defines the renewable and load Management credits for group R-1 occupancies.
-	-	Table C406.3(4)	Renewable and Load Management Credits for Group B Occupancies	This new table defines the renewable and load Management credits for group B occupancies.
-	-	Table C406.3(5)	Renewable and Load Management Credits for A-2 Occupancies	This new table defines the renewable and load Management credits for group A-2 occupancies.
-	-	Table C406.3(6)	Renewable and Load Management Credits for Group M Occupancies	This new table defines the renewable and load Management credits for group M occupancies.
-	-	Table C406.3(7)	Renewable and Load Management Credits for Group E Occupancies	This new table defines the renewable and load Management credits for group E occupancies.

-	-	Table C406.3(8)	Renewable and Load Management Credits for GROUP S-1 AND S-2 Occupancies	This new table defines the renewable and load Management credits for group S-1 and S-2 occupancies.
-	-	Table C406.3(9	Renewable and Load Management Credits for Other Occupancies	This new table defines the renewable and load Management credits for other occupancies.
-	-	C406.3.1	R01 Renewable energy	This new section requires projects installing on-site renewable energy systems with a capacity of at least 0.1 W/ft^2 of building floor area or securing off-site renewable energy must achieve energy credits for this measure calculated per the formula in this section. Sections C406.3.1.1 and Subsections C406.3.1.1.1 through C406.3.1.1.4 were added to support self-contained renewable energy measure R01.
-	-	C406.3.1.1	R01 Renewable energy	This new section allows projects to install on-site renewable energy systems with a capacity of at least 0.1 w/ft^2 (1.08 W/m^2) of building floor area per section C406.3.1.1.1 or securing off-site renewable energy per section C406.3.1.1.2. Section C406.3.1.1 and Subsections C406.3.1.1.1 through C406.3.1.1.4 were added to support self-

				contained renewable energy credit measure R01.
-	-	C406.3.1.1	Renewable energy systems	This is a new section added to support the implementation of energy credit measure R01 and has new subsection C406.3.1.1.1 through C406.3.1.1.4.
-	-	C406.3.1.1.1	On-site renewable energy systems	This new section requires buildings to be provided with on-site renewable electricity generation systems with a direct current (DC) nameplate power rating of not less than 0.75 W/ft^2 (8.1 W/m^2) multiplied by the sum of the gross conditioned floor area of all floors, not to exceed the combined gross conditioned floor area of the three largest floors.
-	-	C406.3.1.1.2	Off-site renewable energy	Adds new requirement for off-site renewable electrical energy procurement and off-site contract.
-	-	C406.3.1.1.2.1	Off-site procurement	Adds new requirements how a building owner, procure and be credited for the total amount of off-site renewable electrical energy.
-	-	C406.3.1.1.2.2	Off-site contract	Adds new section that requires that renewable energy must be delivered or credited to the building site under an energy contract with a duration of

				not less than 10 years. The contract must be structured to survive a partial or full trans fer of ownership of the building property.
-	-	C406.3.1.1.3	Renewable energy certificate (REC) documentation	This new section requires that renewable energy production located on the property and at other locations the criteria specified for RECs must be satisfied and must demonstrate compliance.
-	-	C406.3.1.1.4	Renewable energy certificate purchase	Adds new requirements that a building that qualifies for one or more of the exceptions to Section C406.3.1.1.1, the renewable electricity products purchased must comply with the Green-e Energy National Standard for renewable electricity products and quantity of renewable electricity contracted must be equivalent to five times the total amount of off-site renewable energy calculated in accordance with Equation 4-29 .
-	-	C406.3.2	G01 Lighting load management	This new section require a project to achieve energy credits for installing demand-responsive lighting controls for general interior lighting must comply with sub-section C406.3.2.1. The demand-responsive lighting controls must automatically reduce the light output or power of

				controlled lighting to not more than 80% of full output.
-	-	C406.3.2.1	Demand responsive lighting controls function	This new function enables installing demand-responsive lighting controls for general interior lighting load management measure.
-	-	C406.3.3	G02 HVAC load management	This new section requires automatic load management controls must be configured to manage: • Cooling temperature shift where electric cooling is in use, controls must gradually increase the cooling setpoint by at least 3°F over a minimum of 3 hours or reduce effective cooling capacity to 60% of installed capacity during the peak period. • Heating temperature shift where electric heating is in use, controls must gradually decrease the heating setpoint by at least 3°F over a minimum of 3 hours or reduce effective heating capacity to 60% of installed capacity during the peak period. • Ventilation shift where HVAC systems serve multiple zones and have less than 70% outdoor air required, include controls that

				provide excess outdoor air preceding the peak period and reduce outdoor air by at least 30% during the peak period, in accordance with ASHRAE Standard 62.1 Section 6.2.5.2 or provisions for approved engineering analysis in Section 403.3.1.1 of the IMC.
-	-	Table C406.3.3	Energy Credits Adjustment Based on Use of Ventilation Shift or Demand Response	Adds new table defines demand response signal availability, demand response requirement and adjustment factors.
-	-	C406.3.4	G03 Automated shading load management	This new section requires that fenestration on east, south and west exposures greater than 20% of the wall area, load management credits must be achieved as follows: 1. Automatic exterior shading devices or dynamic glazing that can reduce solar gain through sunlit fenestration by ≥ 50% when fully closed must receive the full credits in Tables C406.3(1) through C406.3(9). 2. Automatic interior shading devices with a solar reflectance of not less than 0.50 for the surface facing the fenestration must receive 40% of the credits

				in Tables C406.3(1) through C406.3(9). 3. All shading devices, dynamic glazing or shading attachments must provide ≥ 90% coverage of the total fenestration on east, south and west exposures in the building to achieve the credits determined in Item #1 or #2. Alternatively, provide ≥ 70% coverage of the total fenestration on the south and west exposures in the building to achieve 50% of the credits determined in Item 1 or 2. Permits alternative controls option.
-	-	C406.3.5	G04 Electric energy storage	This new section requires electric storage devices to be charged and discharged by automatic load management controls to store energy during nonpeak periods and use stored energy during peak periods to reduce building demand. Electric storage devices must have a minimum capacity of 1.5 Wh/ft^2 of gross building area. Base credits in Tables C406.3(1) through C406.3(9) are based on installed electric storage of 5 Wh/ft^2 and must be prorated for actual installed storage capacity between 1.5 and 15 Wh/ft^2

				using the formula provided in this section. Larger energy storage is permitted; however, credits are limited to the range of 1.5 to 15 Wh/ft^2.
-	-	C406.3.6	G05 Cooling energy storage	This new section requires that automatic load management controls must be capable of activating ice or chilled water storage equipment to reduce demand during summer peak periods. Storage tank standby loss must be demonstrated through analysis to be ≤ 2% of storage capacity over a 24-hour period for the cooling design day. Base credits in Section C406.3 are based on storage capacity of the design peak hour cooling load with a 1.15 sizing factor. Credits must be prorated for installed storage systems sized between 0.5- and 4.0-times design day peak hour cooling load, rounded to the nearest whole credit.

		C406.3.7	G06 Service hot water energy storage	This new section requires that service hot water (SHW) heated by electricity, automatic load management controls complying with ANSI/CTA-2045-B must preheat stored SHW before the peak period and suspend electric water heating during the peak period. Storage capacity must be provided by either: (1) Preheating water above 140°F delivery temperature with at least 1.34 kWh of energy storage per kW of water-heating capacity. Tempering valves must be provided at the water heater delivery location. (2) Providing additional heated water tank storage capacity above peak SHW demand with equivalent peak storage capacity to Item 1. Credits earned for measure G06 must be calculated using the formula in this section and adjustment factors from Table C406.3.7.
		Table C406.3.7	Energy Credit Adjustment Based on the Use of Heat Pump Water Heater or Demand Response	Adds new table for energy credit adjustment based on the use of heat pump water heater or demand response for service hot water energy storage.

		C406.3.8	G07 Building thermal mass	This new section requires project to have additional passive interior mass and night flush control of the HVAC system. The credit is available for projects that have at least 80% of gross floor area unoccupied between midnight and 6:00 a.m. The project must meet the following requirements: 1. Interior to the building thermal envelope insulation provides 10 lb_m/ft of project conditioned floor area of passive thermal mass in the building interior wall, the inside of the exterior wall or the interior floor construction, and the mass surfaces directly contacting the air in conditioned spaces. 2. HVAC units for ≥ 80% of the supply airflow in the project must be equipped with outdoor air economizers and fans that have variable or low speed capable of operating at 66% or lower airflow and be included in the night flush control sequence. 3. Night flush controls must be configured with a strategy that demonstrated to be effective, avoids added morning heating and is approved by the authority having

				jurisdiction. The night flush activated depending on the outside air temperature and average zone air temperature, and when the fan can operate at a low speed.
Section C407—Simulated Building Performance				
C407	Total Building Performance	C407	Simulated building performance	Replaced the "*Total*" with "*Simulated*" in the Section heading.
C407.1	Scope	C407.1	Scope	Replaced the "total" with "simulated"
C407.2	Mandatory requirements	C407.2	Mandatory requirements	Revised the mandatory requirements to include Section C402.2.2.1.
Table C407.5.1(1)	Specifications for the Standard Reference and Proposed Designs	Table C407.5.1(1)	Specifications for the Standard Reference and Proposed Designs	Replaced the roof's and above grade wall's "*solar absorptance of 0.75*" requirement with "*solar reflectance of 0.25*."
C407.6.3	Exceptional calculation methods	C407.6.3	Exceptional calculation methods	Added the text "*simulated*" to "*building performance*" is meant to say the "*simulated building performance*."
C408.2.2.1	Air systems balancing	C408.2.2.1	Air systems balancing	Revised the air balancing provision to include testing, adjusting, and balancing procedures by adding the code language "the Testing, Adjusting and Balancing Bureau (TABB) in conjunction with the Sheet Metal and Air Conditioning

				Contractors' National Association (SMACNA) TAB procedural guide.”
Section C409—Calculation of the HVAC Total System Performance Ratio				
-	-	C409	Calculation of the HVAC total system performance ratio	Adds a new section C409 including its subsections and tables. Section C409 Calculation of the HVAC Total System Performance Ratio is a new optional compliance method that was obtained from the 2024 IECC. Currently, the provision is used to support HVAC energy credit measure H01 and does not increase the stringency of the 2026 FBC-EC instead provides design flexibility.
-	-	C409.1	Applicability	This new section defines the applicability of HVAC total system performance ratio (TSPR) method requires complying with this section.
-	-	C409.2	Permitted uses	This new section permits to use TSPR method use with HVAC systems that serve building occupancies and applications described in Table C409.4.
-	-	C409.2.1	Systems not permitted	Reserved.
-	-	C409.3	HVAC TSPR compliance	This new section requires that the HVAC systems be permitted to use

				TSPR and comply with Section C409.4.
-	-	C409.4	Performance target	This new section requires that HVAC systems serving all uses or portions of uses listed in Section C409.2 that are not served by systems excluded, the HVAC TSPR of the proposed design must be greater than or equal to the ratio of HVAC TSPR of the standard reference design to the mechanical performance factor (MPF) specified in Table C409.4.
-	-	Table C409.4	Mechanical Performance Factors	This new table lists the MPF values used in calculating TSPR.
-	-	C409.4.1	HVAC TSPR	This new section defines the equation for calculating HVAC TSPR as shown in Equation 4-37 below. Equation 4-37 HVAC TSPR = heating and cooling load/building HVAC system energy.
-	-	C409.5	General	This new section requires that projects must use the procedures of this section when determining compliance using HVAC total system performance ratio.

-	-	C409.5.1	Simulation program	This section requires simulation tools that uses this procedure to calculate the HVAC TSPR of the standard reference design must comply with the following: (1) The simulation program must calculate the HVAC TSPR based only on the input for the proposed design and the requirements of Section C409. (2) The tool must meet the applicable subsections and tested in accordance with ASHRAE Standard 140 (3) The program must meet the testing and reporting requirements of ASHRAE Standard 140. (4) The simulation program must have the ability to model part-load performance.
-	-	C409.5.2	Climatic data	This new section requires the simulation program to perform the simulation using hourly values of climatic data for 8,760 hours and must reflect approved coincident hourly data weather data elements for the building location.

-	-	C409.5.3	Documentation	This section requires documentation or web links to documentation conforming to the provisions of this section which must be provided to the code official.
-	-	C409.5.3.1	Compliance report	This new section defines the report submittal requirements and specifies the building component, HVAC and other elements of the system for reporting purposes.
-	-	C409.6	Calculation procedures	This new section requires that the standard reference design and proposed design must be configured and analyzed using identical methods and techniques.
-	-	C409.6.1	Simulation of the proposed building design	This section defines how the proposed design is configured and analyzed.
-	-	C409.6.1.1	Thermal block geometry	This new section defines how geometry of buildings is created using one or more thermal blocks. Each thermal block must define attributes, including thermal block dimensions, number of floors, floor-to-floor height and floor-to ceiling height. The tool is allowed to use simplified predefined shapes to represent thermal blocks. Portions of the building are served by systems

				not covered by the requirements of section C409 are exempted.
-	-	C409.6.1.1.1	Number of thermal blocks	This new section defines the criteria for how the number thermal blocks per building are determined.
-	-	C409.6.1.2	Thermal zoning	This section defines the rules how each story in a thermal block must be modeled.
-	-	C409.6.1.2.1	Core and shell, build-out and future system construction analysis	This new section defines the rules and how it is modeled when the building permit applies to only a portion of the HVAC system in a building and the remaining components will be designed under a future building permit or an existing installation.
-	-	C409.6.1.3	Occupancy	This new section defines the requirements how building occupancies modeled in the standard reference design and the proposed design.
-	-	C409.6.1.3.1	Occupancy type	This new section defines how occupancy type for each thermal block modeled and must be consistent with the building occupancies in Table C409.4. Portions of the building occupancy and uses other than those specified in Table C409.4 must not be included in the simulation. Surfaces

				adjacent to such excluded building portions must be modeled as adiabatic.
-	-	C409.6.1.3.2	Occupancy schedule, density and heat gain	This new section requires occupant density, heat gain and schedule must be for multifamily, offices, retail spaces, libraries, hotels/motels or schools as specified by ANSI/ASHRAE/IES 90.1, Normative Appendix C.
-	-	C409.6.1.4	Building thermal envelope components	This new section requires building thermal envelope components modeled in the standard reference design and the proposed design must meet requirements of this section.
-	-	C409.6.1.4.1	Roofs	This new section requires roof *U-factor* and area must be modeled as in the proposed design. Area-weighted *U-factor* must be used If different roof thermal properties exist in a single thermal block. Roofs must be modeled with insulation above a steel roof deck. Solar reflectance and emittance must be per section C402.4 and Table C402.4.
-	-	C409.6.1.4.2	Above-grade walls	This new section requires *U-factor* and area of above-grade walls must be modeled as in the proposed

				design. Area-weighted *U-factor* must be used If different wall constructions exist on the facade of a thermal block. Walls must be modeled as a steel frame construction.
-	-	C409.6.1.4.3	Below-grade walls	This new section requires *C-factor* and area of below-grade walls must be modeled as in the proposed design. An area-weighted *C-factor* must be used If different below-grade wall constructions exist in a thermal block.
-	-	C409.6.1.4.4	Above-grade exterior floors	This new section requires *U-factors* and floor area must be modeled as in the proposed design. An area-weighted *U-factors* must be used If different floor constructions exist in a thermal block. Exterior floors must be modeled as a steel frame.
-	-	C409.6.1.4.5	Slab-on-grade floors	This new section requires the *F-factor* and perimeter of slab-on-grade floors must be modeled the same as the proposed design. A perimeter-weighted F-factor must be used If different slab-on-grade floor constructions exist in a thermal block.
-	-	C409.6.1.4.6	Vertical fenestration	This new section requires window area and area-weighted *U-factor* and

				SHGC must be modeled for each facade based on the proposed design. Each exterior surface in a thermal block must comply with Section C409.6.1.1.1, Item 5. Windows must be combined into a single window centered on each facade based on the area and sill height. Area-weighted average *U-factor*, SHGC or sill heights must be on a facade in a thermal block.
-	-	C409.6.1.4.7	C409.6.1.4.7 Skylights	This new section requires skylight area and area-weighted *U-factor* and *SHGC* must be modeled for each roof based on the proposed design. Skylights must be combined into a single skylight centered on the roof of each zone.
-	-	C409.6.1.4.8	Exterior shading	This new section requires permanent window overhangs must be modeled. Window width-weighted projection factors must be specified where windows with and without over hangs or windows with different overhang projection factors exist on a facade.
-	-	C409.6.1.6	Miscellaneous equipment	This new section requires miscellaneous equipment schedule, and power must be used for multifamily buildings,

				offices, retail spaces, libraries or schools as specified by ANSI/ASHRAE/IES 90.1, Normative Appendix C. The impact of miscellaneous equipment controls is assumed to be captured by the equipment schedule, and no explicit controls must be modeled. Multiple-family dwelling units and common rooms has exception.
-	-	C409.6.1.5	Lighting	This new section requires interior lighting power density must be per Table C405.3.2(1) for multifamily buildings, offices, retail spaces, libraries or schools. Lighting schedule for these buildings must be specified by ANSI/ASHRAE/IES 90.1. The impact of lighting controls is assumed to be captured by the lighting schedules, and no explicit controls modeling is allowed. Exterior lighting should not be modeled.
-	-	C409.6.1.7	Elevators	This new section requires elevators must not be modeled.
-	-	C409.6.1.8	Service water heating equipment	This new section requires service water heating must not be modeled.
-	-	C409.6.1.9	On-site renewable energy systems	This new section requires on-site renewable energy systems must not be modeled.

-	-	C409.6.1.10	HVAC equipment	This new section requires where proposed or where reference system parameters are not specified in Section C409, HVAC systems must be modeled to meet the minimum requirements of Section C403.
-	-	C409.6.1.10.1	Supported HVAC systems	This new section requires at a minimum, the HVAC systems shown in Table C409.6.1.10.1 must be supported by the simulation program.
		Table C409.6.1.10.1	Proposed Building HVAC Systems Supported by HVAC TSPR By Simulation Software	This new section permits 12 HVAC systems for use with the TSPR compliance method.
		C409.6.1.10.2	Proposed building HVAC system simulation.	This new section defines the rules of how the HVAC systems must be modeled in the proposed design, specifies sizing, design conditions, ventilation, part-load operation requirements, and documents simplification and clarifications.
		Table C409.6.1.10.2(1)	Proposed Building System Parameters	Adds a new table specifies the modeling assumptions for the proposed building systems parameters.

		Table C409.6.1.10.2(2)	Fan and Pump Power Curve Coefficients	Adds a new table that specifies the part-load fan power and pump power modifying curves coefficients.
		C409.6.1.10.3	Demand control ventilation	This new section requires demand control ventilation (DCV) to be modeled using a simplified approach that adjusts the design outdoor supply airflow rate based on the floor area of the building served by DCV. The simplified method must accommodate both variable DCV and On/Off DCV, giving On/Off DCV one third of the effective floor control area of the variable DCV.
		Table C409.6.1.10.3	DCV Outdoor Air Reduction Curve Coefficients	Adds a new table that defines the adjustment curve coefficients that reduces the design outdoor air flow rate when modeling DCV using a simplified approach based on the floor area served by the DCV.
		C409.6.2	Simulation of the standard reference design.	This new section defines how standard reference design must be configured and analyzed.
		C409.6.2.1	Utility rates	This new section defines the standard reference design must use utility rate as the proposed design.
		C409.6.2.2	Thermal blocks	This new section requires the standard reference design to use thermal blocks the same as the proposed design.

		C409.6.2.3	Thermal zoning	This new section requires the standard reference design to use thermal zoning the same as the proposed design.
		C409.6.2.4	Occupancy type, schedule, density and heat gain	This new section requires the standard reference design, and the proposed design must use the same occupancy type, schedule, density and heat gain.
		C409.6.2.5	Envelope components	This new section requires the standard reference design, and the proposed design must use the same envelope components.
		C409.6.2.6	Lighting	This new section requires a standard reference design, and the proposed design must use the same lighting specification.
		C409.6.2.7	Miscellaneous equipment	This new section requires a standard reference design, and the proposed design must use the same lighting specification.
		C409.6.2.8	Elevators	This new section requires elevators that are not modeled. The same as the proposed design.
		C409.6.2.9	Service water heating equipment	This new section requires water heating equipment must not be modeled. The same as the proposed design.
		C409.6.2.10	On-site renewable energy Systems	This new section require on-site renewable energy systems not

				modeled. The same as the proposed design.
		C409.6.2.11	HVAC equipment	This new section requires the reference building design HVAC equipment consisting of separate space conditioning systems be as described in Tables C409.6.2.11(1) through C409.6.2.11(3) by building use types. The climate zones are classified as “warm” and “Cold.” “warm” refers to climate zones 0 through 2 and 3A, and “cold” refers to climate zones 3B, 3C and 4 through 8.
		Table C409.6.2.11(1)	Reference Building Design HVAC Complex Systems	Adds a new table that defines the reference building design HVAC complex systems by the building type, system type category, and “*warm*” and “*cold*” weather classification.
		Table C409.6.2.11(2)	TSPR Reference Building Design HVAC Simple Systems	Adds a new table that defines the TSPR reference building design HVAC simple systems by the building type, system type category, and “*warm*” and “*cold*” weather classification.
		Table C409.6.2.11(3)	TSPR Reference Building Design HVAC Simple Systems	Adds a new table that defines the TSPR reference building design HVAC simple systems by the building type, system type category,

				and “*warm*” and “*cold*” weather classification.
		C409.7	Target design HVAC Systems	This new section requires target system descriptions in Tables C409.7(1) through C409.7(3) to be used for developing mechanical performance factors only.
		Table C409.7(1)	Target Building Design Criteria HVAC Complex Systems	Adds a new table that defines the target building design criteria for HVAC complex systems by the building type, system types and “*warm*” and “*cold*” weather classification.
		Table C409.7(2)	Target Building Design Criteria HVAC Simple Systems	Adds a new table that defines the target building design criteria for HVAC simple systems by the building type, system type category, and “*warm*” and “*cold*” weather classification.
		Table C409.7(3)	Target Building Design Criteria HVAC Simple Systems	Adds a new table that defines the target building design criteria for HVAC simple systems by the building type, system type category, and “*warm*” and “*cold*” weather classification.
Section C502 Additions				
C502.2	Change in space conditioning	C502.2	Change in space conditioning	Replaced the text “total” with “simulated” to indicate the “building performance” meant to say the

				“simulated building performance” in exception item #2.
Reference Standards				
See Energy Conservation volume for additions, updates, and changes.				
Appendix CA: Forms				