Significant Commercial and Residential Provision Changes Between the 6th Edition (2017) and 7th Edition (2020) Florida Building Code, Energy Conservation Volumes

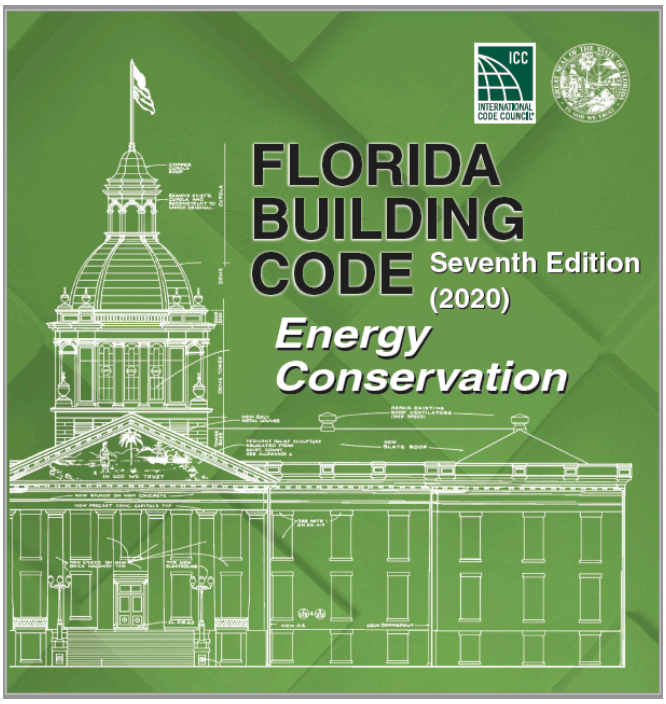
June 2020

This brochure provides an overview of the most impactful commercial and residential provision changes between the *6th Edition (2017) and 7thEdition (2020) Florida Building Code, Energy Conservation* (FBCEC) volumes.

The following page is a quick reference, bulleted list that highlights the most impactful commercial and residential FBCEC changes. The remaining pages provide chapter-by-chapter discussions of impactful changes to the code, again separated into commercial and residential sections.

Commercial provision changes between the 6th (2017) and 7th (2020) editions include a number of new definitions, removal of automatic receptacle control requirement for ASHRAE 90.1 compliance, a new Group R-1 building card key control requirement, updated equipment minimum efficiency tables, and extensive revision and reorganization of indoor and exterior lighting devices and controls sections. Commercial refrigeration equipment provisions are also revised, and include new maximum energy consumption tables for certain walk-in cooler and freezer classes.

Residential provision changes between the 6th (2017) and 7th (2020) editions include a prescriptive compliance electric resistance heating prohibition for Climate Zone 2, increased lighting efficacy requirements, new dehumidifier provisions, and several changes to performance compliance calculation specifications. Residential reporting changes include new building and duct air leakage test reports and an extensive revision of the prescriptive compliance Form R402 report.



The *7th Edition (2020) FBCEC* is comprised of the *6th Edition (2017) FBCEC* "base code" plus Florida Building Commission-approved modifications coming from both the *2018 International Energy Conservation Code (IECC)* and other proposals made during the 2020 code change cycle.

DISCLAIMER—This document is intended to give the reader only general factual information current at the time of publication. This document is not a substitute for professional advice and should not be used for guidance or decisions related to a specific design or construction project. This document is not intended to reflect the opinion of any of the entities, agencies or organizations identified in the materials and if any opinions appear, they are those of the individual author and should not be relied upon in any event. This document is applicable to the 7th Edition (2020) Florida Building Code, Energy Conservation.

Commercial Energy Conservation Code Change Highlights



- Several new definitions added
- Revised ANSI/ASHRAE 90.1 Standard 2016 code application, exempting Automatic Receptacle Control and Electrical Energy Monitoring requirements
- Group R-1 buildings (Boarding houses, hotels or motels) containing over 50 guest rooms required to provide control technology for each guest room to automatically setup thermostat and turn off ventilation fan when not occupied
- Revised, re-organized and updated minimum efficiency performance requirements of commercial refrigerators, freezers, refrigerator-freezers, walk-in coolers, walk-in freezers and refrigeration equipment
- Increased minimum efficiencies in six HVAC equipment tables and added new "CEER" rating for room ACs and HPs
- Revised service water heater equipment performance efficiency, including adding a new draw pattern category and increased minimum efficiency requirements for most water heater types and introduced new "UEF" efficiency rating metric
- Extensively revised and re-organized lighting devices and lighting controls sections for interior lighting. Reduced maximum interior Lighting Power Density (LPD) allowance for many building types; added new occupant sensor controls function requirement for open office areas
- Exterior lighting controls required to have daylight shutoff, decorative lighting shutoff, lighting setback, and exterior time-switch; exterior lighting power base and surface allowances are reduced significantly
- Certain electric motor types excluded from code provisions and increased minimum efficiency of other electric motors
- New provisions and clarifications for construction documents

Residential Energy Conservation Code Change Highlights



- A new electric resistance space heating prohibition for prescriptive projects in Climate Zone 2
- Updated residential minimum equipment efficiencies (provided in Commercial Provision Chapter 4 equipment efficiency tables)
- A new whole-house mechanical ventilation minimum fan efficacy stipulation for HRVs and ERVs
- Modified mechanical ventilation vent fan energy use standard reference design specification for performance compliance
- Increased lighting efficacy requirement
- Blower door testing requirement clarification for performance (section R405) projects with proposed air leakage values less than 7 ACH50
- Performance compliance duct testing exception change that clarifies that ducts must be tested if an air leakage of less than the (default) Qn_{out} of 0.080 is proposed
- New dehumidifier provisions and dehumidifier performance compliance specifications (only applicable if the proposed project has a dehumidifier)
- Revised service water heating performance compliance specifications, now based on ANSI/RESNET/ICC 301
- New building and duct air leakage compliance forms and extensively reformatted prescriptive compliance (R402) form

Commercial Energy Conservation Code Change

This overview of commercial provision changes in the 7th Edition (2020) Florida Building Code, Energy Conservation (FBCEC) focuses on code sections with significant changes and highlights changes with energy impacts.

Chapter 1 [CE] Scope and Administration

There are no changes to the commercial Chapter 1 Scope and Administration chapter between the 6th Edition (2017) and 7th Edition (2020) FBCEC.

Chapter 2 [CE] Definitions

New commercial definitions added to the 7th Edition (2020) FBCEC include “Access (To)”, “Captive Key Override”, “Cavity Insulation”, “Fan, Embedded”, “Fan Array”, “Fan Energy Index (FEI)”, “Fan Nameplate Electrical Input Power”, “Fan System Electrical Input Power”, “IEC Design H Motor”, “IEC Design N Motor”, “Isolation Devices”, “Luminaire-Level Lighting Controls”, “NEMA Design A Motor”, “NEMA Design B Motor”, “NEMA Design C Motor”, “Networked Guestroom Control System”, “Ready Access (To)”, and “Visible Transmittance (Annual) [VTannual].”

Modified definitions include “Computer Room”, “Entrance Door”, “Fan System Design Conditions”, “Fenestration”, “Nameplate Horsepower”, and “Roof Assembly.”

Deleted definitions include "Fan efficiency grade (FRG)", "General Purpose Electric Motor (subtype I)", "General Purpose Electric Motor (subtype II)", "Low-voltage Lighting", "Readily Accessible", and "Screw Lamp Holders."

Chapter 3 [CE] General Requirements

Changes to general commercial requirements in the 7th Edition (2020) FBCEC included clarification of the fenestration products *U-factor* ratings provisions in section C303.1.3, modified table captions for Table C303.1.3(2) and Table C303.1.3(3), and updating section C304.2.1 *Single materials* by replacing building material R-values and thermal conductivities determination testing standard ASTM 236 with ASTM 1363.



Automatic receptacle control is no longer required under the ASHRAE 90.1 method of compliance for commercial buildings.

Chapter 4 [CE] Commercial Energy Efficiency

The Commercial Energy Efficiency chapter saw extensive changes between the 6th Edition (2017) and 7th Edition (2020) FBCECs, including a number of clarifications, the re-organization of several sections, and several new and modified system requirement revisions.

C401.2 Application

This section is revised to **exclude** Sections 8.4.2 *Automatic Receptacle Control* and 8.4.3 *Electrical Energy Monitoring* in addition to Section 9.4.1.1(g) *Interior Lighting Controls* of the ANSI/ASHRAE/IESNA 90.1 standard for the commercial building compliance code. It is also revised to comply with the updated Section *C408 Maintenance Information and System Commissioning*.



Group R-1 buildings (boarding houses, hotels or motels) containing over 50 guest rooms, must have each guest room able to have temperature and ventilation controlled with card keys. See sections C403.2.4.8 – C403.3.4.8.2.

C403.2.4.8 Automatic control of HVAC systems serving guest rooms

New section C403.2.4.8 *Automatic control of HVAC systems serving guest rooms* is added. For Group R-1 buildings (*boarding houses, hotels or motels*) containing *over 50 guest rooms*, each guest room must be provided with *Card key controls* that comply with the two new sub-sections C403.2.4.8.1 *Temperature setpoint controls* and C403.2.4.8.2 *Ventilation controls*.

C403.2.14 Refrigeration equipment performance

This revised section requires commercial refrigerators, freezers, refrigerator-freezers, walk-in coolers, walk-in freezers and refrigeration equipment performance to be determined in accordance with new sections C403.2.14.1 and C403.2.14.2. Table C403.2.14.2(1) for Walk-in Cooler and Freezer Display Door minimum efficiency requirements is updated, and new Table C403.2.14.2(2) is added for Walk-in Cooler and Freezer Non-Display Door minimum efficiency requirements. Another new Table, C403.2.14.2(3) for Walk-in Cooler and Freezer Refrigeration System minimum efficiency requirements is also added.

C403.2.3 HVAC equipment performance requirements

This section is revised and minimum efficiencies of HVAC equipment are updated in Tables C403.2.3(1), C403.2.3(2), C403.2.3(3), C403.2.3(5), C403.2.3(9), and C403.2.3(11). New "CEER" rating is added for room ACs and HPs.

C404.2 Service water-heating equipment performance efficiency

This section is revised, and Table C404.2 *Minimum Performance of Water-Heating Equipment*, is reorganized and updated with new minimum efficiency requirements. Water-heating equipment *Energy Factor (EF)* is now replaced with newly introduced *Uniform Energy Factor (UEF)* performance ratings metric together with a related new *draw pattern* category.

C405 Electrical Power and Lighting Systems

Lighting devices and lighting controls sections for interior and exterior lighting are extensively revised and re-organized. The maximum interior *Lighting Power Density (LPD)* allowance for the *Building Area Method* in Table *C405.3.2(1)* and for the *Space-by-space* methods in Table C405.3.2(2) are reduced for most categories. The exterior lighting power base and surface allowances in Table C405.4.2(2) and Table C405.4.2(3) are reduced significantly for all lighting zones.

TABLE C403.2.3(1)
MINIMUM EFFICIENCY REQUIREMENTS:
ELECTRICALLY OPERATED UNITARY AIR CONDITIONERS AND CONDENSING UNITS

EQUIPMENT TYPE	SIZE CATEGORY	HEATING SECTION TYPE	SUBCATEGORY OR RATING CONDITION	MINIMUM EFFICIENCY	TEST PROCEDURE[a]
Air conditioners, air cooled	< 65,000 Btu/h[b]	All	Split System	14.0 SEER	AHRI 210/240
			Single Package	14.0 SEER[c]	
Through-the-wall (air cooled)	≤ 30,000 Btu/h[b]	All	Split system	12.0 SEER	
			Single Package	12.0 SEER	
Small-duct high-velocity (air cooled)	< 65,000 Btu/h[b]	All	Split System	12.0 SEER	
Air conditioners, air cooled	≥ 65,000 Btu/h and < 135,000 Btu/h	Electric Resistance (or None)	Split System and Single Package	11.2 EER 12.9 IEER	AHRI 340/360
		All other	Split System and Single Package	11.0 EER 12.7 IEER	
	≥ 135,000 Btu/h and < 240,000 Btu/h	Electric Resistance (or None)	Split System and Single Package	11.0 EER 12.4 IEER	
		All other	Split System and Single Package	10.8 EER 12.2 IEER	
	≥ 240,000 Btu/h and < 760,000 Btu/h	Electric Resistance (or None)	Split System and Single Package	10.0 EER 11.6 IEER	
		All other	Split System and Single Package	9.8 EER 11.4 IEER	

Partial 7th Edition (2020) FBCEC Table C403.2.3(1) with updated minimum equipment efficiencies shown in red.

C405.1 General (Mandatory)

Lighting system controls and maximum lighting power allowance requirements in section C405.1 *General* are revised and applicable lighting code is clarified, including: dwelling units within multifamily buildings must comply with section R404.1; all other dwelling units must comply with Section R404.1, or with Sections C405.2.4 and C405.3; sleeping units must comply with section C405.2.4, and with section R404.1 or C405.3; and lighting installed in walk-in coolers, walk-in freezers, refrigerated warehouse coolers and refrigerated warehouse freezers must comply with the lighting requirements of section C403.2.14.

C405.2 Lighting controls (Mandatory)

Section C405.2 *Lighting controls* is revised and re-organized for clarity. Revised lighting control requirements can be met either via Sections C405.2.1 through C405.2.6, or luminaire level lighting controls (LLLC) and lighting controls in Sections C405.2.1, C405.2.4 and C405.2.5 by independently monitoring occupant activity, monitoring electric lighting and daylighting levels using sensors, setpoints, timers, and dimmers.

C405.2.1 Occupant sensor controls

This section updates and adds new space types that require occupant sensor controls.

C405.2.1.1 Occupant sensor control function



Daylight-response controls are re-organized and extensively edited for clarity and consistency.

This section clarifies that occupant sensor controls in warehouses must comply with section C405.2.1.2 and occupant sensor controls in open plan office areas must comply with new section C405.2.1.3. All other space types with occupant sensor controls requirement were revised to automatically turn off lights within 20 minutes after all occupants have left the space.

C405.2.1.3 Occupant sensor control function in open plan office areas

This new section requires occupant sensor control function in open plan office space type.

C405.2.3 Daylight-responsive controls

Daylight-response controls are re-organized and extensively edited for clarity and consistency. *Sidelight Daylight Zones* is replaced with *Sidelit Zones*, and *Toplight Daylight Zones* is replaced with *Toplit Zones*. *Dwelling and sleeping unit's* exemption from daylight-responsive controls requirement is removed. New buildings where the total connected lighting power calculated in accordance with Section C405.3.1 is less than or equal to the adjusted interior lighting power allowance calculated using Equation 4-8 are exempt from the daylight-responsive controls requirement.

C405.2.4 Specific application controls

Revised specific application lighting controls section C405.2.4 requirement. Besides occupant sensor based lighting control complying with section C405.2.1.1 or a time-switch control complying with section C405.2.2.1, a manual control separate from general lighting control is required for display and accent lighting, display cases lighting, task lighting, permanently installed under-shelf or under-cabinet lighting, and lighting equipment used for sale or education demonstration.

C405.2.6 Exterior lighting controls

This section is reorganized for clarification and lighting systems controls are revised to comply with new sub-sections C405.2.6.1 *Daylight shutoff*, C405.2.6.2 *Decorative lighting shutoff*, C405.2.6.3 *Lighting setback,* and C405.2.6.4 *Exterior time-switch control function*.

C405.3.1 Total connected interior lighting power

Equation 4-9 used to calculate total connected interior lighting power (TCLP) is updated, and clarification is added to task and display lighting exemption and excluded television broadcast lighting power for playing areas in sports arenas from TCLP calculation.

C405.3.2 Interior lighting power allowance

The total interior lighting power allowance (watts) is determined according to updated Table C405.3.2(1) using the *Building Area Method*, or updated Table C405.3.2(2) using the *Space-by-Space Method*. The interior Lighting Power Density (LPD) values in Table C405.3.2(1) and Table C405.3.2(2) are both reduced. Section *C405.3.2.2.1 Additional interior lighting power* is revised to use an updated additional interior lighting power allowance calculation Equation 4-10 and set new maximum limits for additional LPD used for the purpose of decorative appearance.

C405.4 Exterior lighting power requirements (Mandatory)

This revision requires that the total connected exterior lighting power be calculated in accordance with section C405.4.1 and not exceed the exterior lighting power allowance calculated in accordance with a new section C405.4.2.

C405.4.1 Total connected exterior building exterior lighting power



Exterior lighting power allowances are reduced for most applications.

This section is revised to provide definition that the total exterior connected lighting power must be the total maximum rated wattage of all lighting that is powered through the energy service for the building. Five new exterior lighting application exemptions are added.

C405.4.2 Exterior lighting power allowance

Changes require that the exterior lighting power be determined in accordance with exterior lighting zones definition in Table C405.4.2(1) and the lighting power allowances be as specified in updated Table C405.4.2(2). The latter table contains base site allowance and all other allowances except the formerly known as non-tradable surfaces only. Lighting power allowances for most applications are reduced for all lighting zones.

C405.4.2.1 Additional exterior lighting power

This new sub-section states that any increase in the exterior lighting power allowance is limited to specific lighting applications indicated in the new Table C405.4.2(3). Allowances in this table are reduced significantly for all categories except *Building facades*.

C405.5.1 Applicability

A new exception is added that excludes compliance requirement with ANSI/ASHRAE 90.1 Standard sections *8.4.2 Automatic Receptacle Control and 8.4.3 Electrical Energy Monitoring*. This exception parallels the ASHRAE 90.1 controls exclusion in section C401.2 (discussed above).

C408.3.2 Documentation requirements

Revisions clarify that the construction documents must be provided to the building owner or owner's authorized agent. New provisions are also added that require the construction document include three new sub-sections: C408.3.2.1 *Drawings*, C408.3.2.2 *Manuals* and C408.3.2.3 *Reports*.

C405.7 Electrical motors (Mandatory)

A new exemption is added for certain electric motor application types from the minimum efficiency requirements, and minimum efficiency requirements are increased for electric motors in Tables C405.7(1) and C405.7.(2) due to new U.S. federal minimum motor efficiency upgrade.

Chapter 5 [CE] Existing Buildings

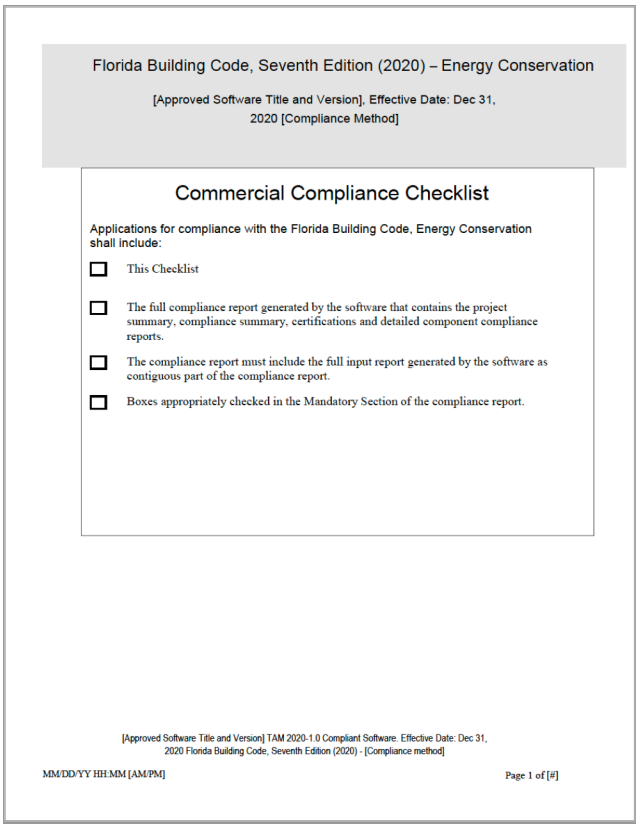
The only changes to the commercial Chapter 5 Existing Buildings chapter between the 6th Edition (2017) and 7th Edition (2020) FBCEC are two new exceptions added in sections C503.2 and C505.1, concerning when unconditioned or low-energy space is altered to conditioned space and when spaces undergo a change in occupancy.

APPENDIX CA Forms

Commercial form changes in the 7th Edition (2020) FBCEC include editorial changes and a new Commercial Compliance Checklist is added to help clarify reporting requirements and facilitate code compliance verification.

Appendix CB Solar-Ready Zone—Commercial

This appendix is for new construction where solar-ready provisions are required. *SOLAR-READY ZONE* is defined in sections CB102 and CB103. Sub-section CB103.1 *General* defines solar-ready zone location requirements and requires compliance with additional new provisions in sub-sections CB103.2 through CB103.8.



Florida Building Code, Seventh Edition (2020) – Energy Conservation

[Approved Software Title and Version], Effective Date: Dec 31, 2020 [Compliance Method]

Commercial Compliance Checklist

Applications for compliance with the Florida Building Code, Energy Conservation shall include:

- ☐ This Checklist
- ☐ The full compliance report generated by the software that contains the project summary, compliance summary, certifications and detailed component compliance reports.
- ☐ The compliance report must include the full input report generated by the software as contiguous part of the compliance report.
- ☐ Boxes appropriately checked in the Mandatory Section of the compliance report.

[Approved Software Title and Version] TAM 2020-1.0 Compliant Software. Effective Date: Dec 31, 2020 Florida Building Code, Seventh Edition (2020) - [Compliance method]

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A new Commercial Compliance Checklist is added in the 7th Edition to help clarify reporting requirements and facilitate code compliance verification.



A Solar-Ready Zone is defined and includes new provisions.

Residential Energy Conservation Code Changes

This overview of residential provision changes in the 7th Edition (2020) Florida Building Code, Energy Conservation (FBCEC) focuses on code sections with significant changes and highlights changes with energy impacts.

Chapter 1 [RE] Scope and Administration

There are no changes to the residential Chapter 1 Scope and Administration chapter between the 6th Edition (2017) and 7th Edition (2020) FBCEC.

Chapter 2 [RE] Definitions

New residential definitions for "cavity insulation" and "guest suite" are added to the 7th Edition (2020) FBCEC. A definition for "High-efficacy Lamps" is deleted and instead incorporated into a modified Chapter 4 *Lighting equipment* section (discussed below). Wording changes and clarifications are also made to four existing residential definitions: "Approved Agency," "Building Thermal Envelope," "Labeled," and "Skylight."

Chapter 3 [RE] General Requirements

Changes to the residential General Requirements in the 7th Edition (2020) FBCEC include a formatting change to the fenestration product rating provisions in Section R303.1.3 and two clarifying table heading revisions.

Chapter 4 [RE] Residential Energy Efficiency

The Residential Energy Efficiency chapter saw a number of changes between the 6th (2017) and 7th (2020) editions including a number of clarifications and several new and modified system requirements and specifications.

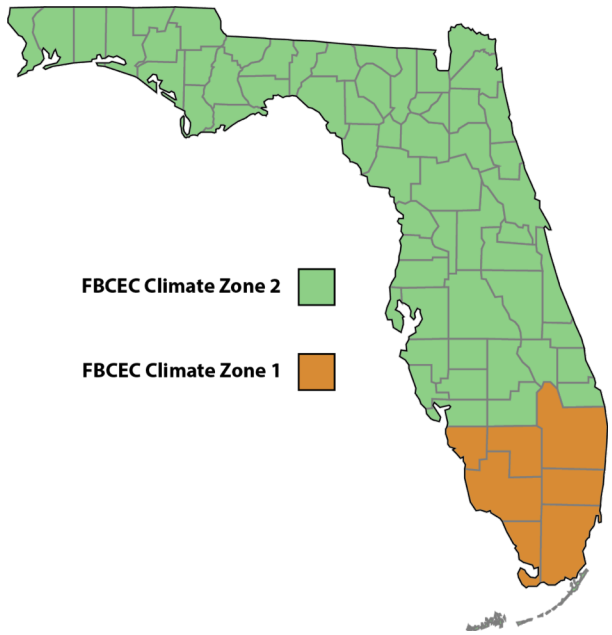
R403.3.3 Duct testing (Mandatory)

An existing 6th Edition (2017) FBCEC exception to this Systems section states that duct testing is not mandatory for buildings complying via the performance (section R405) method. This exception remains in the 7th Edition (2020) FBCEC but an added clarification states that performance path (section R405) duct leakage testing *is* required if the compliance report shows credit has been taken for a duct leakage to outside (Qn_{out}) of less than 0.080.

Table R403.6.1 Whole-house mechanical ventilation system fan efficacy

This change adds a minimum efficacy requirement of 1.2 cfm/watt for heat and energy recovery ventilators (HRVs and ERVs) to the existing fan efficacy requirements in this table.

R403.7.2. Electric space heating (Prescriptive)



The 2020 FBCEC prohibits resistance space heating from being the primary heating system used for prescriptive residential compliance in Climate Zone 2. It is still allowed under performance code compliance methods.

This new Systems section prohibits resistance space heating from being the primary heating system used in Climate Zone 2 for residential projects complying via the prescriptive path. Resistance space heating can still be the primary heating system for Climate Zone 2 projects complying via the performance (section R405) or Energy Rating Index (section R406) path.

Residential Lighting Efficacy

Changes to the residential lighting efficacy requirements in the 7th Edition (2020) FBCEC include 1) removing a high-efficacy lamp definition that, in part, based minimum lumens per watt specifications on lamp wattage, and 2) increasing minimum efficacy requirements:

6th Edition (2017) FBCEC:

[Def.] HIGH-EFFICACY LAMPS. Compact fluorescent lamps, T-8 or smaller diameter linear fluorescent lamps, or lamps with a minimum efficacy of:
60 lumens per watt for lamps over 40 watts;
50 lumens per watt for lamps over 15 watts to 40 watts; and
40 lumens per watt for lamps 15 watts or less.

R404.1 Lighting equipment (Mandatory). Not less than 75 percent of the lamps in permanently installed lighting fixtures shall be high-efficacy lamps or not less than 75 percent of the permanently installed lighting fixtures shall contain only high-efficacy lamps.
Exception: Low-voltage lighting.

7th Edition (2020) FBCEC:

High-efficacy-lamps definition deleted.

R404.1 Lighting equipment (Mandatory). Not less than 90 percent of the lamps in permanently installed luminaires shall have an efficacy of at least 45 lumens-per-watt or shall utilize lamps with an efficacy of not less than 65 lumens-per-watt.

R403.13 Dehumidifiers (Mandatory)

For the first time in the residential Florida Energy Code, this new Systems section addresses residential dehumidifiers. In cases where a dehumidifier is installed, requirements include minimum rated efficiencies based on capacity, sensor control with sensor location where it is exposed to mixed house air, a minimum R-2 insulation level if installed in unconditioned space, and condensate disposal as specified. Corresponding performance (section R405) design specifications are also added in new Dehumidification Systems and Dehumidistat sections in Table R405.5.2(1).

R403.13.1 Ducted dehumidifiers

This new Systems sub-section addresses ducted dehumidifiers, stipulating where backdraft dampers are required and prohibiting dehumidifiers from being ducted to or from a central ducted cooling system on the return duct side (upstream from the central cooling evaporator coil). The sub-section also requires dehumidifier ductwork located in unconditioned space to be insulated to a minimum of R-6.

R404.1 Lighting equipment (Mandatory)



Now 90% of permanently installed lamps are required to be luminaires of at least 45 lumens per watt or lamps need to be at least 65 lumens per watt.

Changes to this Electrical Power and Lighting Systems section replace "high-efficacy" term with minimum lumens per watt efficacy specifications for luminaries (45 lumens per watt) and lamps (65 lumens per watt). The required percentage of permanently installed lamps with these minimum efficacies has increased from 75% to 90%. An exception for low-voltage lighting is also removed.

Residential Building Air Leakage Testing

With some exceptions, both the 6th Edition (2017) and 7th Edition (2020) FBCEC require residential building air leakage testing, and that the tested air leakage rate not exceed 7 ACH50 (7 air changes per hour at a test pressure of 50 pascals).

Since performance (section R405) compliance credit is provided for ACH50 values of less than 7, a new sub-section, R405.2.2, is added in the 7th Edition (2020) FBCEC that clarifies that if a building air leakage rate below 7 ACH50 is proposed, testing must verify the air leakage does not exceed the proposed rate instead of the 7 ACH50 maximum.

R405.2.2 Building air leakage testing

This new Simulated Performance Alternative sub-section clarifies that if a building air leakage rate below (the maximum allowed rate of) 7 ACH50 is specified for the proposed design, testing must verify the air leakage rate does not exceed the air leakage rate of the proposed design instead of 7 ACH50.

R405.2.3 Duct air leakage testing



*For performance (R405) compliance, if a duct air leakage lower than the default Qn_{out} of 0.080 is **specified** for the proposed design, testing must verify a duct air leakage rate not exceeding the leakage rate of the proposed design.*

This new Simulated Performance Alternative sub-section clarifies that if a duct air leakage lower than the default Qn_{out} of 0.080 is specified for the proposed design, testing must verify a duct air leakage rate not exceeding the leakage rate of the proposed design; otherwise (per Exception 2 in section R403.3.3) duct testing is not mandatory for buildings complying via the performance path.

Table R405.5.2(1) Specifications for the Standard Reference and Proposed Designs: Mechanical Ventilation

This performance compliance path Specifications table change modifies the Mechanical ventilation Standard Reference Design annual vent fan energy use equation, including adding a table-based minimum exhaust fan efficacy component.

Table R405.5.2(1) Specifications for the Standard Reference and Proposed Designs: Service Water Heating

This performance compliance path Specifications table change modifies the Service water heating Standard Reference Design and Proposed Design specifications, making use and energy consumption for both determined in accordance with ANSI/RESNET/ICC 301. The change to Standard 301 allows the calculation to account for 1) climate-specific effects on domestic hot water use, 2) the hot water distribution system type, and 3) the use of additional conservation measures.

R406.4 ERI-based compliance

The standard followed for the ERI method of code compliance has been updated to ANSI/RESNET/ICC 301-2019 with Addendum A.

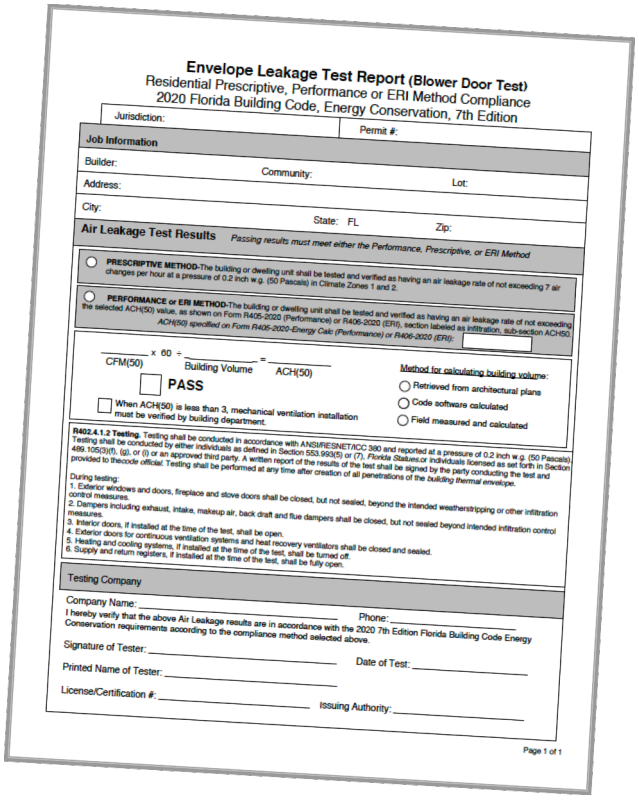
Chapter 5 [RE] Existing Buildings

The changes to the residential Existing Buildings chapter in the 7th Edition (2020) FBCEC include a duct R-value exception for cases in which space does not permit replacement air distribution systems to meet the prescriptive R-value requirement (section R501.7). Another Chapter 5 change allows an area-weighted average *U*-factor and/or SHGC of all replacement fenestration units to be used to demonstrate compliance in cases in which more than one replacement fenestration unit is being installed.

Appendix RD: Forms

Residential form changes between the 6th Edition (2017) and 7th Edition (2020) FBCECs include new forms and one significant form revision.

Envelope Leakage Test Report



Envelope Leakage Test Report (Blower Door Test)
Residential Prescriptive, Performance or ERI Method Compliance
2020 Florida Building Code, Energy Conservation, 7th Edition

Jurisdiction: Permit #:

Job Information
Builder: Community: Lot:
Address:
City: State: FL Zip:

Air Leakage Test Results *Passing results must meet either the Performance, Prescriptive, or ERI Method*

PRESCRIPTIVE METHOD-The building or dwelling unit shall be tested and verified as having an air leakage rate of not exceeding 7 air changes per hour at a pressure of 0.2 inch w.g. (50 Pascals) in Climate Zones 1 and 2.

PERFORMANCE or ERI METHOD-The building or dwelling unit shall be tested and verified as having an air leakage rate of not exceeding the selected ACH(50) value, as shown on Form R405-2020 (Performance) or R406-2020 (ERI), section labeled as infiltration, sub-section ACH(50). *ACH(50) specified on Form R405-2020-Energy Calc (Performance) or R406-2020 (ERI):*

____ x 60 ÷ ____ = ____
CFM(50) Building Volume ACH(50)

PASS

When ACH(50) is less than 3, mechanical ventilation installation must be verified by building department.

Method for calculating building volume:
Retrieved from architectural plans
Code software calculated
Field measured and calculated

R402.4.1.2 Testing. Testing shall be conducted in accordance with ANSI/RESNET/ICC 380 and reported at a pressure of 0.2 inch w.g. (50 Pascals). Testing shall be conducted by either individuals as defined in Section 553.993(5) or (7), *Florida Statutes*,or individuals licensed as set forth in Section 489.105(3)(f), (g), or (i) or an approved third party. A written report of the results of the test shall be signed by the party conducting the test and provided to thecode official. Testing shall be performed at any time after creation of all penetrations of the *building thermal envelope*.

During testing:
1. Exterior windows and doors, fireplace and stove doors shall be closed, but not sealed, beyond the intended weatherstripping or other infiltration control measures.
2. Dampers including exhaust, intake, makeup air, back draft and flue dampers shall be closed, but not sealed beyond intended infiltration control measures.
3. Interior doors, if installed at the time of the test, shall be open.
4. Exterior doors for continuous ventilation systems and heat recovery ventilators shall be closed and sealed.
5. Heating and cooling systems, if installed at the time of the test, shall be turned off.
6. Supply and return registers, if installed at the time of the test, shall be fully open.

Testing Company
Company Name: Phone:
I hereby verify that the above Air Leakage results are in accordance with the 2020 7th Edition Florida Building Code Energy Conservation requirements according to the compliance method selected above.
Signature of Tester: Date of Test:
Printed Name of Tester:
License/Certification #: Issuing Authority:

Page 1 of 1

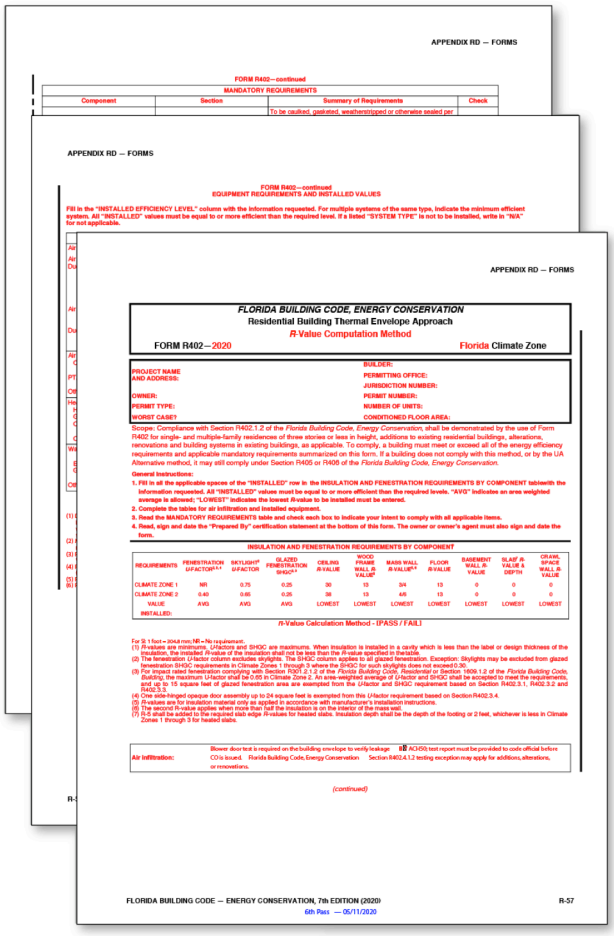
The new residential Envelope Leakage Test Report provides a standardized means of reporting building air leakage (blower door) test results. A similar new Duct Leakage Test Report is also included in the 2020 FBCEC.

The Envelope Leakage Test Report provides a standardized means of reporting section R402.4.1.2 building air leakage (blower door) testing results.

Duct Leakage Test Report

This new form provides a standardized means of reporting section R403.3.2 and R403.3.3 duct air leakage testing results.

Form R402-2020



APPENDIX RD — FORMS

FORM R402—continued
MANDATORY REQUIREMENTS

Component	Section	Summary of Requirements	Check
		To be caulked, gasketed, weatherstripped or otherwise sealed per	

APPENDIX RD — FORMS

FORM R402—continued
EQUIPMENT REQUIREMENTS AND INSTALLED VALUES

Fill in the "INSTALLED EFFICIENCY LEVEL" column with the information requested. For multiple systems of the same type, indicate the minimum efficient system. All "INSTALLED" values must be equal to or more efficient than the required level. If a listed "SYSTEM TYPE" is not to be installed, write in "N/A" for not applicable.

APPENDIX RD — FORMS

FLORIDA BUILDING CODE, ENERGY CONSERVATION
Residential Building Thermal Envelope Approach
R-Value Computation Method

FORM R402—2020 Florida Climate Zone

PROJECT NAME AND ADDRESS:	BUILDER:
	PERMITTING OFFICE:
	JURISDICTION NUMBER:
OWNER:	PERMIT NUMBER:
PERMIT TYPE:	NUMBER OF UNITS:
WORST CASE?	CONDITIONED FLOOR AREA:

Scope: Compliance with Section R402.1.2 of the *Florida Building Code, Energy Conservation*, shall be demonstrated by the use of Form R402 for single- and multiple-family residences of three stories or less in height, additions to existing residential buildings, alterations, renovations and building systems in existing buildings, as applicable. To comply, a building must meet or exceed all of the energy efficiency requirements and applicable mandatory requirements summarized on this form. If a building does not comply with this method, or by the UA Alternative method, it may still comply under Section R405 or R406 of the *Florida Building Code, Energy Conservation*.

General instructions:
1. Fill in all the applicable spaces of the "INSTALLED" row in the INSULATION AND FENESTRATION REQUIREMENTS BY COMPONENT tablewith the information requested. All "INSTALLED" values must be equal to or more efficient than the required levels. "AVG" indicates an area weighted average is allowed; "LOWEST" indicates the lowest *R*-value to be installed must be entered.
2. Complete the tables for air infiltration and installed equipment.
3. Read the MANDATORY REQUIREMENTS table and check each box to indicate your intent to comply with all applicable items.
4. Read, sign and date the "Prepared By" certification statement at the bottom of this form. The owner or owner's agent must also sign and date the form.

INSULATION AND FENESTRATION REQUIREMENTS BY COMPONENT

REQUIREMENTS	FENESTRATION U-FACTOR[a,b,i]	SKYLIGHT[g] U-FACTOR	GLAZED FENESTRATION SHGC[c,i]	CEILING R-VALUE	WOOD FRAME WALL R-VALUE[d]	MASS WALL R-VALUE[d,e]	FLOOR R-VALUE	BASEMENT WALL R-VALUE	SLAB R-VALUE & DEPTH	CRAWL SPACE WALL R-VALUE
CLIMATE ZONE 1	NR	0.75	0.25	30	13	3/4	13	0	0	0
CLIMATE ZONE 2	0.40	0.65	0.25	38	13	4/6	13	0	0	0
VALUE	AVG	AVG	AVG	LOWEST	LOWEST	LOWEST	LOWEST	LOWEST	LOWEST	LOWEST
INSTALLED:										

R-Value Calculation Method - [PASS / FAIL]

For SI: 1 foot = 304.8 mm; NR = No requirement.
(1) *R*-values are minimums. *U*-factors and SHGC are maximums. When insulation is installed in a cavity which is less than the label or design thickness of the insulation, the installed *R*-value of the insulation shall not be less than the *R*-value specified in the table.
(2) The fenestration *U*-factor column excludes skylights. The SHGC column applies to all glazed fenestration. Exception: Skylights may be excluded from glazed fenestration SHGC requirements in Climate Zones 1 through 3 where the SHGC for such skylights does not exceed 0.30.
(3) For impact rated fenestration complying with Section R301.2.1.2 of the *Florida Building Code, Residential* or Section 1609.1.2 of the *Florida Building Code, Building*, the maximum *U*-factor shall be 0.65 in Climate Zone 2. An area-weighted average of *U*-factor and SHGC shall be accepted to meet the requirements. Up to 15 square feet of glazed fenestration area are exempted from the *U*-factor and SHGC requirement based on Section R402.3.1, R402.3.2 and Table 6.
(4) One side-hinged opaque door assembly up to 24 square feet is exempted from this *U*-factor requirement based on Section R402.3.4.
(5) *R*-values are for insulation material only as applied in accordance with manufacturer's installation instructions.
(6) The second *R*-value applies when more than half the insulation is on the interior of the mass wall.
(7) R-5 shall be added to the required slab edge *R*-values for heated slabs. Insulation depth shall be the depth of the footing or 2 feet, whichever is less in Climate Zones 1 through 3 for heated slabs.

Air Infiltration: Blower door test is required on the building envelope to verify leakage. ☒ ACH(50) test report must be provided to code official before CO is issued. Florida Building Code, Energy Conservation Section R402.4.1.2 testing exception may apply for additions, alterations, or renovations.

(continued)

FLORIDA BUILDING CODE — ENERGY CONSERVATION, 7th EDITION (2020) R-57
6th Pass — 05/11/2020

As shown by the red font indicating changes, Form R402 is extensively revised to clarify the prescriptive requirements and eliminate redundancy.

The prescriptive compliance Form R402 is extensively revised from its 6th Edition (2017) version to eliminate redundancy and provide fenestration and insulation requirements in the same format as FBCEC Table R402.1.2.

Resources

7th Edition (2020) *Florida Building Code, Energy Conservation*, International Code Council, Inc. Accessible online at https://www.floridabuilding.org/bc/bc_default.aspx.

Answers to Specific Questions

Florida Department of Business and Professional Regulation: 1-850-487-1824 and https://www.floridabuilding.org.

