



# BROWARD COUNTY BOARD OF RULES AND APPEALS

1 N. University Drive, Suite 3500B, Plantation, FL 33324  
P: 954-765-4500 | F: 954-765-4504 [broward.org/CodeAppeals](http://broward.org/CodeAppeals)

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## 2020 Voting Members

### **Chair**

Mr. Daniel Lavrich,  
P.E., S.I., SECB, F.ASCE, F.SEI  
Structural Engineer

### **Vice-Chair**

Mr. Stephen E. Bailey, P.E.  
Electrical Engineer

Mr. John Famularo,  
Roofing Contractor  
Mrs. Shalanda Giles Nelson,  
General Contractor  
Mr. Daniel Rourke  
Master Plumber  
Mr. Gregg D'Attile,  
Mechanical Contractor  
Mr. Ron Burr  
Swimming Pool Contractor  
Mr. John Sims,  
Master Electrician  
Mr. Dennis A. Ulmer  
Consumer Advocate  
Mr. Abbas H. Zackria, CSI  
Architect  
Mr. Robert A. Kamm, P.E.  
Mechanical Engineer

### **Vacant**

Representative Disabled Community  
Mr. Sergio Pellecer  
Fire Service Professional

## 2020 Alternate Board Members

Mr. Jeff Falkanger  
Architect  
Mr. Steven Feller, P.E.  
Mechanical Engineer  
Mr. Alberto Fernandez,  
General Contractor  
Mr. Robert Taylor  
Fire Service

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Mr. David Rice, P.E.  
Electrical Engineer  
Mr. James Terry,  
Master Plumber  
Mr. David Tringo,  
Master Electrician  
Mr. William Flett,  
Roofing Contractor

### **Board Attorney**

Charles M. Kramer, Esq.

### **Board Administrative Director**

James DiPietro

—ESTABLISHED 1971—

**To:** Members of the Ad Hoc Energy Conservation Committee

D. Rice, P.E.                      M. Charnin                      S. Danchuck                      T. Fallon  
W. Haygood                      E. Jenison                      A. Kamm, P.E.                      B. Lomel, P.E.  
J. Travers                      D. Ulmer                      B. Volin                      A. Zackria, CSI

**From:** Timothy de Carion, Chief Energy Code Compliance Officer

**Date:** October 26, 2020

**Subj:** Ad Hoc Energy Conservation Committee to Discuss Agenda Items

The Chairman of the Ad Hoc Energy Conservation Committee, Mr. Dave Rice, P.E., has called for a meeting of the Ad Hoc Energy Conservation Committee on October 26, 2020 at 2:00pm via Zoom.

## AGENDA

### **Roll Call**

### **Approval of Minutes**

### **Chairman's Welcoming Remarks**

- Overview
- Self-Introduction

### **Chief Energy Code Compliance Officer Welcoming Remarks**

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### **General Discussion**

### **Schedule Next Meeting**

### **Adjournment**

*Sunshine Law Reminder: Advisory Board members cannot communicate with each other on a possible committee or Board topic outside of a public meeting, per State statute.*



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## Reference Documents

1. Mission Statement (pg. 1)
2. Legal Opinion from Council, Charles Kramer (pg. 7)
3. Sunshine Law Manual (pg. 12)
4. Sample Checklists by Discipline (pg. 14)
  - 4a. BORA Guidelines for Review and Approval (pg. 15)
  - 4b. BORA Checklist for Review and Approval (pg. 16)
5. Florida Building Code Energy Conservation Required Checklists (pg. 28)
  - Example Form R405-2017 (pg. 29)
6. Proposed Class Outline (2020) (pg. 42)
7. Energy Code Plan Review Program with Plan Review Comments (2017) (pg. 50)

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Roofing Contractor

#### **Board Attorney**

Charles M. Kramer, Esq.

#### **Board Administrative Director**

James DiPietro

# Item 1: Mission Statement

# Mission Statement of the Ad Hoc Energy Conservation Committee

The Ad Hoc Energy Conservation Committee exists to provide a service to the community of Broward County by gathering information and setting up forums for the exchange of ideas to improve the uniform enforcement of the Florida Energy Conservation Code, (FECC).

This committee shall provide guidelines for the Board of Rules and Appeals (BORA), and local code enforcement officials to enforce the codes and (BORA) policies in building construction for all trades relating to Energy Conservation. This committee shall plan, organize, research, and inform, accordingly, offering the construction industry a forum to address issues and topics relating to emerging technologies relating to Energy Conservation.

This committee shall communicate to the construction industry and Broward County residents that energy conservation is everyone's responsibility, an essential part of building construction and will offer committee recommendations to the Board of Rules and Appeals to achieve energy conservation goals.

## Ad Hoc Energy Conservation Committee Members

1	Dave Rice, P.E. – Chair	Professional Electrical Engineer	Board Member
2	Art Kamm, P.E. – Vice Chair	Professional Mechanical Engineer	Board Member
3	Dennis Ulmer	Consumer Advocate	Board Member
4	Abbas Zackria, CSI	Registered Architect	Board Member
5	Mike Charnin	Mechanical Plans Examiner/Inspector	
6	Samantha Danchuck	Broward County Sustainability Representative	
7	Tim Fallon	Plumbing Plans Examiner/Inspector	
8	Wyatt T. Haygood	Structural Plans Examiner/Inspector	
9	Eric Jenison	Test and Balance Contractor	
10	Brian Lomel, P.E.	LEED AP (Accredited Professional)	
11	John Travers	Electrical Plans Examiner/Inspector	
12	Bob Volin	A/C Contractor	



# Ad Hoc Energy Conservation Committee

**Mr. David Rice, P.E.**

**Chair – Board Member**

Professional Electrical Engineer  
R.C. Engineering, Inc.  
5532 NW 106 Drive, Coral Springs, FL 33076  
Phone: 954-655-7901  
Mobile: 954-757-7901  
Email: [drice@rc-eng.com](mailto:drice@rc-eng.com)

**Mr. Art Kamm, P.E.**

**Vice Chair – Board Member**

Professional Mechanical Engineer  
Kamm Consulting, Inc.  
1407 West Newport Center Drive, Deerfield Beach, FL 33442  
Phone: 954-949-2200  
Mobile: 561-756-0601  
Email: [art@kammconsulting.com](mailto:art@kammconsulting.com)

**Mr. Dennis Ulmer**

**Board Member**

Consumer Advocate  
1007 NW 11 Place, Fort Lauderdale, FL 33311  
Phone: 954-763-1913  
Email: [dennisu512@aol.com](mailto:dennisu512@aol.com)

**Mr. Abbas Zackria, CSI**

**Board Member**

Registered Architect  
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5813 N. Andrews Way, Fort Lauderdale, FL 33309  
Phone: 954-522-4123 x304  
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**Mr. Mike Charnin**

**Mechanical Plans Examiner/Inspector**

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**Ms. Samantha Danchuck**

**Broward County Sustainability Representative**

Broward County Environmental Protection  
115 S. Andrews Ave., Room 329H, Fort Lauderdale, FL 33301  
Phone: 954-519-1295  
Email: [SDANCHUK@broward.org](mailto:SDANCHUK@broward.org)

**Mr. Tim Fallon****Plumbing Plans Examiner/Inspector**

City of Coral Springs  
9500 West Sample Road, 1<sup>st</sup> Floor, Coral Spring, FL 33065  
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**Mr. Wyatt T. Haygood****Structural Plans Examiner/Inspector**

City of Parkland  
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**Mr. Eric Jenison****Test and Balance Contractor**

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**Mr. Brian Lomel, P.E.****LEED AP (Accredited Professional)**

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**Mr. John Travers****Electrical Plans Examiner/Inspector**

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**Mr. Bob Volin****A/C Contractor**

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Mobile: 954-632-1603  
Email: [airdesign@gate.net](mailto:airdesign@gate.net)

# Committee Staff

**Mr. Timothy de Carion**

**Board Chief Code Compliance Officer**

Chief Energy Code Compliance Officer  
Board of Rules and Appeals  
1 N University Drive, Suite 3500B, Plantation, FL 33324  
Phone: 954-765-4500 (x9853)  
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Email: [tdecarion@broward.org](mailto:tdecarion@broward.org)

**Ms. Brianna Curry**

**Secretary**

Board of Rules and Appeals  
1 N. University Drive, Suite 3500B, Plantation, FL 33324  
Phone: 954-765-4500 (x9885)  
Fax: 954-765-4504  
Email: [bcurry@broward.org](mailto:bcurry@broward.org)

**Energy Conservation Committee Members**

- Four Board Members
- One A/C Contractor
- One Broward County Sustainability Representative
- One Electrical Plans Examiner/Inspector
- One LEED AP (Accredited Professional)
- One Mechanical Plans Examiner/Inspector
- One Plumbing Plans Examiner/Inspector
- One Structural Plans Examiner/Inspector
- One Test and Balance Contractor

**12 Total Committee Members**

## **Appointment Guidelines**

- A.** Committee Members may not have had any personal or business dealings with any BORA certified inspector or BORA staff employee for a period of 12 months prior to their appointment, nor anticipate any future interests of a similar nature, where the purpose of either is to derive direct or indirect benefit to the Committee Member. Committee Members will promptly advise the Administrative Director of any possible conflicts of interest for further determination as necessary. The Administrative Director will notify the Committee Appointees of this Board Policy when letters of appointments are sent.
- B.** Board Members and Alternates will only fill board members seats, except for the Fire Code Committee, the Board's Consumer Advocate and the representative of the Disabled Community.
- C.** None of the above Committees will include two or more individuals from the same private or government entity, except members of the Board of Rules and Appeals.
- D.** As members of a committee operating under the State of Florida Sunshine Law, committee members shall not discuss any potential committee topic among themselves except at a legally advertised meeting.
- E.** The above guidelines are also intended to apply to any Ad Hoc Committees or sub-committee that may be created.
- F.** Standing Committees are required to meet at least once each year.

**Item 2: Advisory Opinion as to F.S. Sec 553.904**



ATTORNEYS & COUNSELORS  
ESTABLISHED 1925

ROBERT E. ZIEGLER  
J. PATRICK DYAL  
ROMNEY C. ROGERS\*  
MARK F. BOOTH  
CHARLES M. KRAMER<sup>o</sup>  
PERRY W. HODGES, JR., P.A.  
DANIEL TE YOUNG<sup>o</sup>  
LIZA SMOKER FAW  
ROMNEY C. (CAM) ROGERS, JR.  
OF COUNSEL  
JOANNE DAUDT  
JOHN (JACK) F. PHILLIPS  
\*ALSO ADMITTED TO GEORGIA BAR  
<sup>o</sup>BOARD CERTIFIED IN CONSTRUCTION LAW

**TO: JIM DIPIETRO**

**FROM: CHARLES M. KRAMER**

**DATE: December 10, 2014**

**RE: ADVISORY OPINION AS TO F.S. SEC 553.904**

You have asked your attorney to provide an opinion as to the “chilling” effect which Florida Statutes Sec. 553.904 has upon more aggressive “green” building codes or ordinances as might be propounded by independent municipalities, the Board of County Commissioners, or other local official.

A review of F.S. Sec. 553.904 determines that it states:

**553.904 Thermal efficiency standards for new nonresidential buildings.**—Thermal designs and operations for new nonresidential buildings for which building permits are obtained after March 15, 1979, must at a minimum take into account exterior envelope physical characteristics, including thermal mass; HVAC, service water heating, energy distribution, lighting, energy managing, and auxiliary systems design and selection; and HVAC, service water heating, energy distribution, lighting, energy managing, and auxiliary equipment performance, and are not required to meet standards more stringent than the provisions of the Florida Building Code-Energy Conservation.

F.S. Sec. 553.904 (emphasis added).

It is a fact that when a statute is not clear on its face, the authority having jurisdiction may look to legislative intent or other sources to determine the true meaning. See Batista v. State, 863 S2 1180 (Fla. 2003) (“*In attempting to discern legislative intent, the appellate court*

*first looks to the actual language used in the statute. If the statutory language is unclear, the appellate court applies rules of statutory construction and explores legislative history to determine legislative intent.”).*

**With respect to F.S. Sec. 553.904, the statute is clear and local municipalities, the Board of County Commissioners, or other local official may not enact any legislation or rule which is more stringent than the provisions of the Florida Building Code-Energy Conservation.**

There are no saving clauses contained in Special Act Chapter 71-575 nor are there any alternate provision in the Florida Statutes.

The question has been posed that since the International Green Construction Code is a stand-alone document, then any standard set forth in the 2012 IGCC or in the Los Angeles green code that is not addressed in the Energy Conservation Code, would it be permissible for a municipality to selectively adopt one or more of these green code standards if the party can otherwise meet the test for local amendments required by the State legislature.

It must be remembered that F.S. Sec 553.904 determines that no local municipality may adopt rules *which in any way* make the Energy Conservation Code more stringent. In so saying, any additional requirements which overlap with any provision in the Florida Building Code Energy Conservation, and thereby create a more stringent requirement, are not permitted.

**Item 2a:** Local authorities may not enact energy codes more stringent than the current FBC Energy Conservation Code



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**From:** Chuck Kramer <[ckramer@bmwlawyers.net](mailto:ckramer@bmwlawyers.net)>  
**Sent:** Tuesday, October 20, 2020 9:50 AM  
**To:** Dipietro, James <[JDIPIETRO@broward.org](mailto:JDIPIETRO@broward.org)>  
**Subject:** Email chain from November, 2014

**External Email Warning:** This email originated from outside the Broward County email system. Do not reply, click links, or open attachments unless you recognize the sender's **email address** (not just the name) as legitimate and know the content is safe. Report any suspicious emails to [ETSSecurity@broward.org](mailto:ETSSecurity@broward.org).

Jim,

I have located the original email chain and it appears that I was only asked to review F.S. Sec 553.904.

I have attached the entire email chain dated November 24, 2014 which resulted in the opinion drafted December 10, 2014.

I have also attached the Advisory Opinion as to Sec 553.904 which states exactly that-  
“ADVISORY OPINION AS TO F.S. SEC 553.904.”

This leaves 553.905 and 553.906 outstanding. I would state that neither of these sections determine the right of a local municipality to adopt standards which are more stringent than the provision of the Florida Building Code – Energy Conservation.

Do you wish an Addendum to the Opinion stating same?

Highest regards,  
**Charles M. Kramer** | **BENSON, MUCCI & WEISS PL**  
Florida Bar Board Certified Construction Lawyer  
5561 University Drive, Suite 103  
Coral Springs FL 33067  
Phone 954.323.1023 | Direct 954.947.2523  
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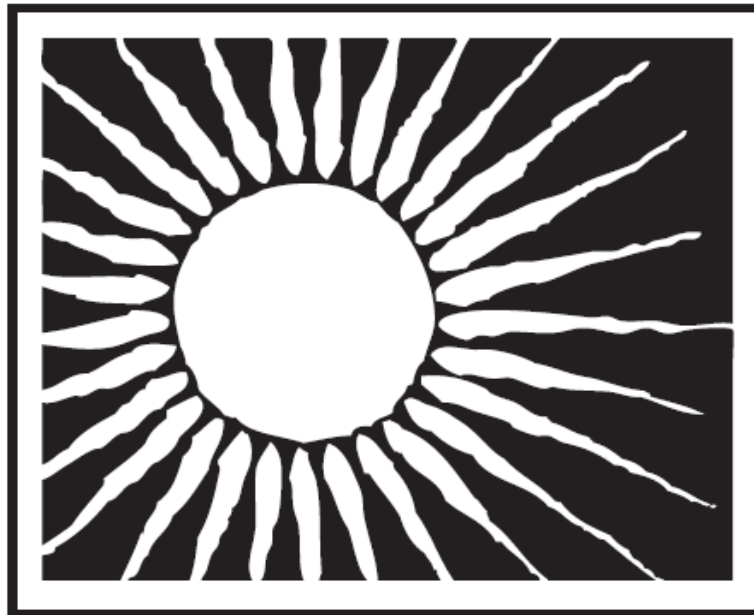


## **Item 3: Sunshine Law Review for all members**

# Government-in-the-Sunshine Manual

Please use the link below to access the “Government-in-the-Sunshine Manual,” Volume 42 (2020):  
[http://myfloridalegal.com/webfiles.nsf/WF/MNOS-B9QQ79/\\$file/SunshineManual.pdf](http://myfloridalegal.com/webfiles.nsf/WF/MNOS-B9QQ79/$file/SunshineManual.pdf)

## GOVERNMENT-IN- THE-SUNSHINE MANUAL



**2020 Edition**

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*A Reference For Compliance  
with Florida’s Public Records  
and Open Meetings Laws*

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**Volume 42**

# **Item 4: Florida Building Code – Energy Conservation**

**Item 4a: Guidelines for Uniform Interpretation of the Florida Building Code (FBC) Energy Conservation for review and approval**

**Item 4b:** Checklists, by discipline, based on Specific FBC Energy Code Sections for review and approval

# BORA ENERGY Guidelines

## **Broward County Board of Rules and Appeals**

### **Energy Conservation Seventh Edition (2020)**



FBC Seventh Edition (2020),  
Effective December 31, 2020

For BORA Approval  
2020-09-11

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## Overview

## Checklist Commercial - Building

### Plan Review

Plans shall include the following information:

- 1.
- 2.
- 3.
- 4.
- 5.
- 6.
- 7.
- 8.
- 9.
- 10.

### Rough Inspection

- 1.
- 2.
- 3.
- 4.
- 5.

### Final Inspection

- 1.
- 2.
- 3.
- 4.
- 5.

**Note:** These checklists are a minimum checklist. Coordinate with the local Electrical AHJ for additional checklist items.

## Checklist Commercial - Plumbing

### Plan Review

Plans shall include the following information:

- 1.
- 2.
- 3.
- 4.
- 5.
- 6.
- 7.
- 8.
- 9.
- 10.

### Rough Inspection

- 1.
- 2.
- 3.
- 4.
- 5.

### Final Inspection

- 1.
- 2.
- 3.
- 4.
- 5.

**Note:** These checklists are a minimum checklist. Coordinate with the local Electrical AHJ for additional checklist items.

## Checklist Commercial - Mechanical

### Plan Review

Plans shall include the following information:

- 1.
- 2.
- 3.
- 4.
- 5.
- 6.
- 7.
- 8.
- 9.
- 10.

### Rough Inspection

- 1.
- 2.
- 3.
- 4.
- 5.

### Final Inspection

- 1.
- 2.
- 3.
- 4.
- 5.

**Note:** These checklists are a minimum checklist. Coordinate with the local Electrical AHJ for additional checklist items.

## Checklist Commercial - Electrical

### Plan Review

Plans shall include the following information (FBC Energy Conservation):

- |   |                      |
|---|----------------------|
| <input type="checkbox"/> 1. Light fixture schedule with wattage and control narrative   | C103.2-10            |
| <input type="checkbox"/> 2. Location of daylight zones on floor plans<br>Daylight controls per C402.4.2.1, C 405.2.3                        | C103.2-11            |
| <input type="checkbox"/> 3. Building thermal envelope depiction for light fixtures<br>Recessed lighting-IC, labeled for air leakage, sealed | C103.2.1<br>C402.5.8 |
| <input type="checkbox"/> 4. Electrical power and lighting systems   | C405                 |
| <input type="checkbox"/> 5. Fill in   |                      |
| <input type="checkbox"/> 6. Fill in   |                      |
| <input type="checkbox"/> 7. Fill in   |                      |
| <input type="checkbox"/> 8. Fill in   |                      |
| <input type="checkbox"/> 9. Fill in   |                      |
| <input type="checkbox"/> 10. Fill in  |                      |

### Rough Inspection

- |  |          |
|--|----------|
| <input type="checkbox"/> 1. Verify compliance with approved plans and specs. | C104.2.5 |
| <input type="checkbox"/> 2. Electrical power and lighting system             | C405     |
| <input type="checkbox"/> 3. Fill in  |          |
| <input type="checkbox"/> 4. Fill in  |          |
| <input type="checkbox"/> 5. Fill in  |          |

### Final Inspection

- |  |          |
|--|----------|
| <input type="checkbox"/> 1. Verify compliance with approved plans and specs. | C104.2.6 |
| <input type="checkbox"/> 2. Electrical power and lighting system             | C405     |
| <input type="checkbox"/> 3. Fill in  |          |
| <input type="checkbox"/> 4. Fill in  |          |
| <input type="checkbox"/> 5. Building commissioning                           | C104.2.6 |
| <input type="checkbox"/> 6. Building commissioning                           | C104.2.6 |

**Note:** These checklists are a minimum checklist. Coordinate with the local Electrical AHJ for additional checklist items.

## Checklist Residential - Building

### Plan Review

Plans shall include the following information:

- 1.
- 2.
- 3.
- 4.
- 5.
- 6.
- 7.
- 8.
- 9.
- 10.

### Rough Inspection

- 1.
- 2.
- 3.
- 4.
- 5.

### Final Inspection

- 1.
- 2.
- 3.
- 4.
- 5.

**Note:** These checklists are a minimum checklist. Coordinate with the local Electrical AHJ for additional checklist items.

## **Checklist Residential - Plumbing**

### **Plan Review**

Plans shall include the following information:

- 1.
- 2.
- 3.
- 4.
- 5.
- 6.
- 7.
- 8.
- 9.
- 10.

### **Rough Inspection**

- 1.
- 2.
- 3.
- 4.
- 5.

### **Final Inspection**

- 1.
- 2.
- 3.
- 4.
- 5.

**Note:** These checklists are a minimum checklist. Coordinate with the local Electrical AHJ for additional checklist items.

## Checklist Residential - Mechanical

### Plan Review

Plans shall include the following information:

- 1.
- 2.
- 3.
- 4.
- 5.
- 6.
- 7.
- 8.
- 9.
- 10.

### Rough Inspection

- 1.
- 2.
- 3.
- 4.
- 5.

### Final Inspection

- 1.
- 2.
- 3.
- 4.
- 5.

**Note:** These checklists are a minimum checklist. Coordinate with the local Electrical AHJ for additional checklist items.



## Checklist Residential - Electrical

### Plan Review

Plans shall include the following information (FBC Energy Conservation):

- |   |          |
|---|----------|
| <input type="checkbox"/> 1. Information on construction documents   | R103.2   |
| <input type="checkbox"/> 2. Air sealing details for recessed lighting   | R103.2-8 |
| <input type="checkbox"/> 3. Building thermal envelope depiction   | R103.2.1 |
| <input type="checkbox"/> 4. Recessed lighting in building thermal envelope shall be IC, labeled for air leakage, sealed | R402.4.5 |
| <input type="checkbox"/> 5. 90% of lamps shall be not less than 65 lumens per watt.                                     | R404.1   |
| <input type="checkbox"/> 6. N/A   |          |
| <input type="checkbox"/> 7. N/A   |          |

### Rough Inspection

1. N/A

### Final Inspection

- |  |                  |
|--|------------------|
| <input type="checkbox"/> 1. Verify required number of high-efficacy lamps and fixtures | R104.2.5, R404.1 |
| <input type="checkbox"/> 2. Recessed lighting in building thermal envelope sealed      | R402.4.5         |
| <input type="checkbox"/> 3. N/A  |                  |
| <input type="checkbox"/> 4. N/A  |                  |
| <input type="checkbox"/> 5. N/A  |                  |

**Note:** These checklists are a minimum checklist. Coordinate with the local Electrical AHJ for additional checklist items.

**Item 5: Required Checklists for the Residential Energy Code (2017)**

**RESIDENTIAL ENERGY CONSERVATION CODE DOCUMENTATION CHECKLIST****Florida Department of Business and Professional Regulation  
Simulated Performance Alternative (Performance) Method**

Applications for compliance with the 2017 Florida Building Code, Energy Conservation via the residential Simulated Performance method shall include:

- \*  A Form 405 report that documents that the Proposed Design complies with Section R405.3 of the Florida Energy Code. This form shall include a summary page indicating home address, e-ratio and the pass or fail status along with summary areas and types of components, whether the home was simulated as a worst-case orientation, name and version of the compliance software tool, name of individual completing the compliance report (1 page) and an input summary checklist that can be used for field verification (usually 4 pages/may be greater)
- Energy Performance Level (EPL) Display Card (one page)
- HVAC system sizing and selection based on ACCA Manual S or per exceptions provided in Section R403.7
- Mandatory Requirements (five pages)

\* **Required prior to CO for the Performance method:**

- Air Barrier and Insulation Inspection Component Criteria checklist (Table 402.4.1.1 - one page)
- A completed Envelope Leakage Test Report (usually one page)
- If Form R405 duct leakage type indicates anything other than "default leakage", then a completed Form R405 Duct Leakage Test Report (usually one page).

# FLORIDA ENERGY EFFICIENCY CODE FOR BUILDING CONSTRUCTION

Florida Department of Business and Professional Regulation - Residential Performance Method

Project Name: ██████████ Street: ██████████ St City, State, Zip: ██████████ Owner: ██████████ Design Location: FL, Daytona Beach	Builder Name: Adley Permit Office: Permit Number: Jurisdiction: 741100 County: Volusia (Florida Climate Zone 2)
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Glass/Floor Area: 0.145                      Total Proposed Modified Loads: 58.33  
 Total Baseline Loads: 61.07

**PASS**

I hereby certify that the plans and specifications covered by this calculation are in compliance with the Florida Energy Code.  PREPARED BY: ██████████ DATE: ██████████  I hereby certify that this building, as designed, is in compliance with the Florida Energy Code.  OWNER/AGENT: ██████████ DATE: ██████████	Review of the plans and specifications covered by this calculation indicates compliance with the Florida Energy Code. Before construction is completed this building will be inspected for compliance with Section 553.908 Florida Statutes.  BUILDING OFFICIAL: _____ DATE: _____
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- Compliance requires certification by the air handler unit manufacturer that the air handler enclosure qualifies as certified factory-sealed in accordance with R403.3.2.1.
- Compliance requires an Air Barrier and Insulation Inspection Checklist in accordance with R402.4.1.1 and this project requires an envelope leakage test report with envelope leakage no greater than 7.00 ACH50 (R402.4.1.2).



INPUT SUMMARY CHECKLIST REPORT

PROJECT												
Title:	[REDACTED]		Bedrooms:	3	Address Type:	Street Address						
Building Type:	User		Conditioned Area:	2038	Lot #							
Owner Name:	[REDACTED]		Total Stories:	1	Block/Subdivision:							
# of Units:	1		Worst Case:	Yes	PlatBook:							
Builder Name:	[REDACTED]		Rotate Angle:	180	Street:	lot 202 144 Corbis Ct						
Permit Office:			Cross Ventilation:		County:	Volusia						
Jurisdiction:			Whole House Fan:		City, State, Zip:	Daytona beach , FL,						
Family Type:	Single-family											
New/Existing:	New (From Plans)											
Comment:												
CLIMATE												
✓	Design Location	TMY Site	Design Temp	97.5 %	2.5 %	Int Design Temp	Winter	Summer	Heating Degree Days	Design Moisture	Daily Temp Range	
_____	FL, Daytona Beach	FL_DAYTONA_BEACH_I	38	92		70	75	789	56	Low		
BLOCKS												
	Number	Name	Area	Volume								
	1	Block1	2038	20380								
SPACES												
	Number	Name	Area	Volume	Kitchen	Occupants	Bedrooms	Infil ID	Finished	Cooled	Heated	
	1	Main	2038	20380	Yes	4	3	1	Yes	Yes	Yes	
FLOORS												
✓	#	Floor Type	Space	Perimeter	R-Value	Area			Tile	Wood	Carpet	
_____	1	Slab-On-Grade Edge Insulatio	Main	192.2 ft	0	2038 ft²			0.7	0	0.3	
ROOF												
✓	#	Type	Materials	Roof Area	Gable Area	Roof Color	Solar Absor.	SA Tested	Emitt	Emitt Tested	Deck Insul.	Pitch (deg)
_____	1	Gable or shed	Composition shingles	2279 ft²	510 ft²	Medium	0.85	No	0.9	No	0	26.6
ATTIC												
✓	#	Type	Ventilation	Vent Ratio (1 in)	Area	RBS	IRCC					
_____	1	Full attic	Vented	300	2038 ft²	N	N					
CEILING												
✓	#	Ceiling Type	Space	R-Value	Ins Type	Area	Framing Frac	Truss Type				
_____	1	Under Attic (Vented)	Main	30	Blown	2038 ft²	0.11	Wood				
_____	2	Knee Wall (Vented)	Main	19	Batt	167 ft²	0.11	Wood				

INPUT SUMMARY CHECKLIST REPORT

WALLS

✓ #	Ornt	Adjacent To	Wall Type	Space	Cavity R-Value	Width Ft In	Height Ft In	Area	Sheathing R-Value	Framing Fraction	Solar Absor	Below Grade%
1	E=>W	Garage	Frame - Wood	Main	13	23	10	230.0 ft²		0.23	0.01	0
2	N=>S	Exterior	Concrete Block - Int Insul	Main	9	44.7	10	447.0 ft²		0	0.5	0
3	W=>E	Exterior	Concrete Block - Int Insul	Main	9	50	10	500.0 ft²		0	0.5	0
4	S=>N	Exterior	Concrete Block - Int Insul	Main	9	46.9	10	469.0 ft²		0	0.5	0
5	E=>W	Exterior	Concrete Block - Int Insul	Main	9	27.6	10	276.0 ft²		0	0.5	0

DOORS

✓ #	Ornt	Door Type	Space	Storms	U-Value	Width Ft In	Height Ft In	Area
1	E=>W	Insulated	Main	None	.4	2.6	8	20.8 ft²
2	E=>W	Insulated	Main	None	.4	3	8	24 ft²

WINDOWS

Orientation shown is the entered orientation (=>) changed to Worst Case.

✓ #	Ornt	Wall ID	Frame	Panes	NFRC	U-Factor	SHGC	Imp	Area	Overhang		Int Shade	Screening
										Depth	Separation		
1	N=>S	2	Metal	Low-E Double	Yes	0.33	0.25	N	15.0 ft²	1.3 ft 0 in	1 ft 0 in	Drapes/blinds	None
2	N=>S	2	Metal	Low-E Double	Yes	0.33	0.25	N	6.0 ft²	1.3 ft 0 in	1 ft 0 in	Drapes/blinds	None
3	W=>E	3	Metal	Low-E Double	Yes	0.33	0.25	N	45.0 ft²	1.3 ft 0 in	1 ft 0 in	Drapes/blinds	None
4	W=>E	3	Metal	Low-E Double	Yes	0.33	0.25	N	176.0 ft²	10.6 ft 0 in	0 ft 0 in	Drapes/blinds	None
5	S=>N	4	Metal	Low-E Double	Yes	0.33	0.25	N	6.0 ft²	1.3 ft 0 in	1 ft 0 in	Drapes/blinds	None
6	E=>W	5	Metal	Low-E Double	Yes	0.33	0.25	N	30.0 ft²	9.3 ft 0 in	1 ft 0 in	Drapes/blinds	None
7	E=>W	5	Metal	Low-E Double	Yes	0.33	0.25	N	8.0 ft²	9.3 ft 0 in	0 ft 0 in	Drapes/blinds	None
8	E=>W	5	Metal	Low-E Double	Yes	0.33	0.25	N	9.0 ft²	9.3 ft 0 in	1 ft 0 in	Drapes/blinds	None

GARAGE

✓ #	Floor Area	Ceiling Area	Exposed Wall Perimeter	Avg. Wall Height	Exposed Wall Insulation
1	920 ft²	920 ft²	64 ft	8 ft	1

INFILTRATION

#	Scope	Method	SLA	CFM 50	ELA	EqLA	ACH	ACH 50
1	Wholehouse	Proposed ACH(50)	.000445	2377.7	130.53	245.48	.3446	7

HEATING SYSTEM

✓ #	System Type	Subtype	Efficiency	Capacity	Block	Ducts
1	Electric Heat Pump/	None	HSPF:9	42 kBtu/hr	1	sys#1



INPUT SUMMARY CHECKLIST REPORT

COOLING SYSTEM													
✓ #	System Type	Subtype	Efficiency	Capacity	Air Flow	SHR	Block	Ducts					
1	Central Unit	None	SEER: 16	36 kBtu/hr	1080 cfm	0.75	1	sys#1					
HOT WATER SYSTEM													
✓ #	System Type	SubType	Location	EF	Cap	Use	SetPnt	Conservation					
1	Electric	None	Garage	0.92	50 gal	60 gal	120 deg	None					
SOLAR HOT WATER SYSTEM													
✓ FSEC	Cert #	Company Name	System Model #	Collector Model #	Collector Area	Storage Volume	FEF						
None	None				ft <sup>2</sup>								
DUCTS													
✓ #	Location	Supply R-Value	Supply Area	Return Location	Return Area	Leakage Type	Air Handler	CFM25 TOT	CFM25 OUT	QN	RLF	Heat	HVAC # Cool
1	Attic	6	407.6 ft	Attic	101.9 ft	Default Leakage	Garage	(Default)	(Default)			1	1
TEMPERATURES													
Programable Thermostat: None				Ceiling Fans:									
Cooling	<input checked="" type="checkbox"/> Jan	<input checked="" type="checkbox"/> Feb	<input checked="" type="checkbox"/> Mar	<input type="checkbox"/> Apr	<input type="checkbox"/> May	<input checked="" type="checkbox"/> Jun	<input checked="" type="checkbox"/> Jul	<input checked="" type="checkbox"/> Aug	<input checked="" type="checkbox"/> Sep	<input type="checkbox"/> Oct	<input type="checkbox"/> Nov	<input type="checkbox"/> Dec	
Heating	<input checked="" type="checkbox"/> Jan	<input checked="" type="checkbox"/> Feb	<input checked="" type="checkbox"/> Mar	<input checked="" type="checkbox"/> Apr	<input type="checkbox"/> May	<input type="checkbox"/> Jun	<input type="checkbox"/> Jul	<input type="checkbox"/> Aug	<input type="checkbox"/> Sep	<input checked="" type="checkbox"/> Oct	<input checked="" type="checkbox"/> Nov	<input checked="" type="checkbox"/> Dec	
Venting	<input type="checkbox"/> Jan	<input type="checkbox"/> Feb	<input checked="" type="checkbox"/> Mar	<input type="checkbox"/> Apr	<input type="checkbox"/> May	<input type="checkbox"/> Jun	<input type="checkbox"/> Jul	<input type="checkbox"/> Aug	<input type="checkbox"/> Sep	<input checked="" type="checkbox"/> Oct	<input checked="" type="checkbox"/> Nov	<input checked="" type="checkbox"/> Dec	
Thermostat Schedule: HERS 2006 Reference													
Schedule Type		1	2	3	4	5	6	7	8	9	10	11	12
Cooling (WD)	AM	78	78	78	78	78	78	78	78	78	78	78	78
	PM	78	78	78	78	78	78	78	78	78	78	78	78
Cooling (WEH)	AM	78	78	78	78	78	78	78	78	78	78	78	78
	PM	78	78	78	78	78	78	78	78	78	78	78	78
Heating (WD)	AM	68	68	68	68	68	68	68	68	68	68	68	68
	PM	68	68	68	68	68	68	68	68	68	68	68	68
Heating (WEH)	AM	68	68	68	68	68	68	68	68	68	68	68	68
	PM	68	68	68	68	68	68	68	68	68	68	68	68
MASS													
Mass Type	Area	Thickness	Furniture Fraction	Space									
Default(8 lbs/sq.ft.)	0 ft <sup>2</sup>	0 ft	0.3	Main									

Name: Test Rater

Signature: \_\_\_\_\_

Rating Compant: Test Rater

Date: \_\_\_\_\_

# ENERGY PERFORMANCE LEVEL (EPL) DISPLAY CARD

**ESTIMATED ENERGY PERFORMANCE INDEX = 83**  
The lower the Energy Performance Index, the more efficient the home.

~~1010 Ninth Street, Tampa, FL 33601~~

<p>1. New construction or existing 2. Single family or multiple family 3. Number of units, if multiple family 4. Number of bedrooms 5. Is this a worst case? 6. Conditioned floor area (ft<sup>2</sup>)</p>	<p>New (From Plans) Single-Family 1 3 No 2100.00</p>	<p>9. Wall Types a. Frm wall, eifs ext, r-15 ca b. Frm wall, stucco ext, r-15 c. N/A d. N/A</p>	<p>Insulation Area (ft<sup>2</sup>) 19.0 1458.00 15.0 270.00 R= R=</p>																																								
<p>7. Windows**</p> <table border="0" style="width: 100%;"> <tr> <td style="width: 15%;">a. U-Factor:</td> <td style="width: 35%;">Sgl, U=0.032</td> <td style="width: 15%;">Area (ft<sup>2</sup>)</td> <td style="width: 35%;">299.58</td> </tr> <tr> <td></td> <td>SHGC:0.25</td> <td></td> <td></td> </tr> <tr> <td>b. U-Factor:</td> <td>Dbl, U=0.032</td> <td>40.56</td> <td></td> </tr> <tr> <td></td> <td>SHGC:0.25</td> <td></td> <td></td> </tr> <tr> <td>c. U-Factor:</td> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td>SHGC:</td> <td></td> <td></td> </tr> <tr> <td>d. U-Factor:</td> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td>SHGC:</td> <td></td> <td></td> </tr> <tr> <td colspan="2">Area Weighted Average Overhang Depth:</td> <td>1.000</td> <td>ft</td> </tr> <tr> <td colspan="2">Area Weighted Average SHGC:</td> <td>0.250</td> <td></td> </tr> </table>	a. U-Factor:	Sgl, U=0.032	Area (ft <sup>2</sup> )	299.58		SHGC:0.25			b. U-Factor:	Dbl, U=0.032	40.56			SHGC:0.25			c. U-Factor:					SHGC:			d. U-Factor:					SHGC:			Area Weighted Average Overhang Depth:		1.000	ft	Area Weighted Average SHGC:		0.250		<p>10. Ceiling Types a. Attic ceiling, asphalt s b. N/A c. N/A</p>	<p>Insulation Area (ft<sup>2</sup>) R=30.0 2100.00 R= R=</p>	<p>11. Ducts a. Sup:Living AH/Ret:Living AH/AH:Living AH</p>
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Area Weighted Average SHGC:		0.250																																									
<p>8. Floor Types</p> <table border="0" style="width: 100%;"> <tr> <td style="width: 15%;">a. Bg floor, light dry soil, on grade</td> <td style="width: 35%;">Insulation</td> <td style="width: 15%;">Area (ft<sup>2</sup>)</td> <td style="width: 35%;">2100.00</td> </tr> <tr> <td>b. N/A</td> <td>R=0.0</td> <td></td> <td></td> </tr> <tr> <td>c. N/A</td> <td>R=</td> <td></td> <td></td> </tr> <tr> <td></td> <td>R=</td> <td></td> <td></td> </tr> </table>	a. Bg floor, light dry soil, on grade	Insulation	Area (ft <sup>2</sup> )	2100.00	b. N/A	R=0.0			c. N/A	R=				R=			<p>12. Cooling systems a. Split air source heat pump b.</p>	<p>kBtu/hr Efficiency 20.2 SEER: 14.0</p>	<p>13. Heating systems a. Split air source heat pump b.</p>																								
a. Bg floor, light dry soil, on grade	Insulation	Area (ft <sup>2</sup> )	2100.00																																								
b. N/A	R=0.0																																										
c. N/A	R=																																										
	R=																																										
<p>14. Hot water systems a. Electric conventional (40 gal) b. Conservation features Solar:FEF=3.0</p>	<p>Cap: 40 gal EF: 0.96</p>	<p>15. Credits Solar WH</p>																																									

I certify that this home complied with the Florida Energy Efficiency Code for Building Construction through the above energy saving features which will be installed (or exceeded) in this home before final inspection. Otherwise, a new EPL Display Card will be completed based on installed Code compliant features.

Builder Signature: \_\_\_\_\_ Date: \_\_\_\_\_

Address of New Home: \_\_\_\_\_ City/FL Zip: \_\_\_\_\_



\*\*Label required by Section 303.1.3 of the Florida Building Code, Energy Conservation, if not DEFAULT.



Florida Building Code, Energy Conservation, 6th Edition (2017)  
Mandatory Requirements for Residential Performance, Prescriptive and ERI Methods

ADDRESS:

Permit Number:

MANDATORY REQUIREMENTS See individual code sections for full details.

SECTION R401 GENERAL

**R401.3 Energy Performance Level (EPL) display card (Mandatory)**The building official shall require that an energy performance level (EPL) display card be completed and certified by the builder to be accurate and correct before final approval of the building for occupancy. Florida law (Section 553.9085, Florida Statutes) requires the EPL display card to be included as an addendum to each sales contract for both presold and nonpresold residential buildings. The EPL display card contains information indicating the energy performance level and efficiencies of components installed in a dwelling unit. The building official shall verify that the EPL display card completed and signed by the builder accurately reflects the plans and specifications submitted to demonstrate code compliance for the building. A copy of the EPL display card can be found in Appendix RD.

**R402.4 Air leakage (Mandatory).** The building thermal envelope shall be constructed to limit air leakage in accordance with the requirements of Sections R402.4.1 through R402.4.5.

**Exception:** Dwelling units of R-2 Occupancies and multiple attached single family dwellings shall be permitted to comply with Section C402.5.

**R402.4.1 Building thermal envelope**The building thermal envelope shall comply with Sections R402.4.1.1 and R402.4.1.2. The sealing methods between dissimilar materials shall allow for differential expansion and contraction.

**R402.4.1.1 Installation.**The components of the building thermal envelope as listed in Table R402.4.1.1 shall be installed in accordance with the manufacturer's instructions and the criteria listed in Table R402.4.1.1, as applicable to the method of construction. Where required by the code official, an approved third party shall inspect all components and verify compliance.

**R402.4.1.2 Testing.** The building or dwelling unit shall be tested and verified as having an air leakage rate not exceeding seven air changes per hour in Climate Zones 1 and 2, and three air changes per hour in Climate Zones 3 through 8. 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 the code official. Testing shall be performed at any time after creation of all penetrations of the building thermal envelope.

**Exception:** Testing is not required for additions, alterations, renovations, or repairs, of the building thermal envelope of existing buildings in which the new construction is less than 85 percent of the building thermal envelope.

During testing:

1. Exterior windows and doors, fireplace and stove doors shall be closed, but not sealed, beyond the intended weatherstripping or other infiltration control measures.
2. Dampers including exhaust, intake, makeup air, backdraft and flue dampers shall be closed, but not sealed beyond intended infiltration control measures.
3. Interior doors, if installed at the time of the test, shall be open.
4. Exterior doors for continuous 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.

**R402.4.2 Fireplaces.** New wood-burning fireplaces shall have tight-fitting flue dampers or doors, and outdoor combustion air. Where using tight-fitting doors on factory-built fireplaces listed and labeled in accordance with UL 127, the doors shall be tested and listed for the fireplace. Where using tight-fitting doors on masonry fireplaces, the doors shall be listed and labeled in accordance with UL 907.

**R402.4.3 Fenestration air leakage**Windows, skylights and sliding glass doors shall have an air infiltration rate of no more than 0.3 cfm per square foot (1.5 L/s/m<sup>2</sup>), and swinging doors no more than 0.5 cfm per square foot (2.6 L/s/m<sup>2</sup>), when tested according to NFRC 400 or AAMA/WDMA/CSA 101/I.S.2/A440 by an accredited, independent laboratory and listed and labeled by the manufacturer.

**Exception:** Site-built windows, skylights and doors.



## MANDATORY REQUIREMENTS - (Continued)

- R402.4.4 Rooms containing fuel-burning appliances.** In Climate Zones 3 through 8, where open combustion air ducts provide combustion air to open combustion fuel burning appliances, the appliances and combustion air opening shall be located outside the building thermal envelope or enclosed in a room, isolated from inside the thermal envelope. Such rooms shall be sealed and insulated in accordance with the envelope requirements of Table R402.1.2, where the walls, floors and ceilings shall meet not less than the basement wall R-value requirement. The door into the room shall be fully gasketed and any water lines and ducts in the room insulated in accordance with Section R403. The combustion air duct shall be insulated where it passes through conditioned space to a minimum of R-8.

**Exceptions:**

1. Direct vent appliances with both intake and exhaust pipes installed continuous to the outside.
2. Fireplaces and stoves complying with Section R402.4.2 and Section R1006 of the Florida Building Code, Residential.

- R402.4.5 Recessed lighting.** Recessed luminaires installed in the building thermal envelope shall be sealed to limit air leakage between conditioned and unconditioned spaces. All recessed luminaires shall be IC-rated and labeled as having an air leakage rate not more than 2.0 cfm (0.944 L/s) when tested in accordance with ASTM E283 at a 1.57 psf (75 Pa) pressure differential. All recessed luminaires shall be sealed with a gasket or caulk between the housing and the interior wall or ceiling covering.

## SECTION R403 SYSTEMS

### R403.1 Controls.

- R403.1.1 Thermostat provision (Mandatory).** At least one thermostat shall be provided for each separate heating and cooling system.

- R403.1.3 Heat pump supplementary heat (Mandatory).** Heat pumps having supplementary electric-resistance heat shall have controls that, except during defrost, prevent supplemental heat operation when the heat pump compressor can meet the heating load.

- R403.3.2 Sealing (Mandatory)** All ducts, air handlers, filter boxes and building cavities that form the primary air containment passageways for air distribution systems shall be considered ducts or plenum chambers, shall be constructed and sealed in accordance with Section C403.2.9.2 of the Commercial Provisions of this code and shall be shown to meet duct tightness criteria below.

Duct tightness shall be verified by testing in accordance with ANSI/RESNET/ICC 380 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), Florida Statutes, to be "substantially leak free" in accordance with Section R403.3.3.

- R403.3.2.1 Sealed air handler.** Air handlers shall have a manufacturer's designation for an air leakage of no more than 2 percent of the design airflow rate when tested in accordance with ASHRAE 193.

- R403.3.3 Duct testing (Mandatory).** Ducts shall be pressure tested to determine air leakage by one of the following methods:

1. Rough-in test: Total leakage shall be measured with a pressure differential of 0.1 inch w.g. (25 Pa) across the system, including the manufacturer enclosure if installed at the time of the test. All registers shall be taped or otherwise sealed during the test.
2. Postconstruction test: Total leakage shall be measured with a pressure differential of 0.1 inch w.g. (25 Pa) across the entire system, including the manufacturer's air handler enclosure. Registers shall be taped or otherwise sealed during the test.

**Exceptions:**

1. A duct air leakage test shall not be required where the ducts and air handlers are located entirely within the building thermal envelope.
2. Duct testing is not mandatory for buildings complying with Section 405 of this code.

A written report of the results of the test shall be signed by the party conducting the test and provided to the code official.

- R403.3.5 Building cavities (Mandatory).** Building framing cavities shall not be used as ducts or plenums.

- R403.4 Mechanical system piping insulation (Mandatory).** Mechanical system piping capable of carrying fluids above 105°F (41°C) or below 55°F (13°C) shall be insulated to a minimum of R-3.

- R403.4.1 Protection of piping insulation.** Piping insulation exposed to weather shall be protected from damage, including that caused by sunlight, moisture, equipment maintenance and wind, and shall provide shielding from solar radiation that can cause degradation of the material. Adhesive tape shall not be permitted.

- R403.5.1 Heated water circulation and temperature maintenance systems (Mandatory)** Heated water circulation systems shall be in accordance with Section R403.5.1.1. Heat trace temperature maintenance systems shall be in accordance with Section R403.5.1.2. Automatic controls, temperature sensors and pumps shall be accessible. Manual controls shall be readily accessible.

- R403.5.1.1 Circulation systems.** Heated water circulation systems shall be provided with a circulation pump. The system return pipe shall be a dedicated return pipe or a cold water supply pipe. Gravity and thermosiphon circulation systems shall be prohibited. Controls for circulating hot water system pumps shall start the pump based on the identification of a demand for hot water within the occupancy. The controls shall automatically turn off the pump when the water in the circulation loop is at the desired temperature and when there is no demand for hot water.

- R403.5.1.2 Heat trace systems.** Electric heat trace systems shall comply with IEEE 515.1 or UL 515. Controls for such systems shall automatically adjust the energy input to the heat tracing to maintain the desired water temperature in the piping in accordance with the times when heated water is used in the occupancy.



## MANDATORY REQUIREMENTS - (Continued)

- R403.5.5 Heat traps (Mandatory).** Storage water heaters not equipped with integral heat traps and having vertical pipe risers shall have heat traps installed on both the inlets and outlets. External heat traps shall consist of either a commercially available heat trap or a downward and upward bend of at least 3 ½ inches (89 mm) in the hot water distribution line and cold water line located as close as possible to the storage tank.
- R403.5.6 Water heater efficiencies (Mandatory).**
- R403.5.6.1.1 Automatic controls.** Service water-heating systems shall be equipped with automatic temperature controls capable of adjustment from the lowest to the highest acceptable temperature settings for the intended use. The minimum temperature setting range shall be from 100°F to 140°F (38°C to 60°C).
- R403.5.6.1.2 Shut down.** A separate switch or a clearly marked circuit breaker shall be provided to permit the power supplied to electric service systems to be turned off. A separate valve shall be provided to permit the energy supplied to the main burner(s) of combustion types of service water-heating systems to be turned off.
- R403.5.6.2 Water-heating equipment.** Water-heating equipment installed in residential units shall meet the minimum efficiencies of Table C404.2 in Chapter 4 of the Florida Building Code, Energy Conservation, Commercial Provisions, for the type of equipment installed. Equipment used to provide heating functions as part of a combination system shall satisfy all stated requirements for the appropriate water-heating category. Solar water heaters shall meet the criteria of Section R403.5.6.2.1.
- R403.5.6.2.1 Solar water-heating systems.** Solar systems for domestic hot water production are rated by the annual solar energy factor of the system. The solar energy factor of a system shall be determined from the Florida Solar Energy Center Directory of Certified Solar Systems. Solar collectors shall be tested in accordance with ISO Standard 9806, Test Methods for Solar Collectors, and SRCC Standard TM-1, Solar Domestic Hot Water System and Component Test Protocol. Collectors in installed solar water-heating systems should meet the following criteria:
1. Be installed with a tilt angle between 10 degrees and 40 degrees of the horizontal; and
  2. Be installed at an orientation within 45 degrees of true south.
- R403.6 Mechanical ventilation (Mandatory).** The building shall be provided with ventilation that meets the requirements of the Florida Building Code, Residential, or Florida Building Code, Mechanical, as applicable, or with other approved means of ventilation including: Natural, Infiltration or Mechanical means. Outdoor air intakes and exhausts shall have automatic or gravity dampers that close when the ventilation system is not operating.
- R403.6.1 Whole-house mechanical ventilation system fan efficacy.** When installed to function as a whole-house mechanical ventilation system, fans shall meet the efficacy requirements of Table R403.6.1.
- Exception:** Where whole-house mechanical ventilation fans are integral to tested and listed HVAC equipment, they shall be powered by an electronically commutated motor.
- R403.6.2 Ventilation air.** Residential buildings designed to be operated at a positive indoor pressure or for mechanical ventilation shall meet the following criteria:
1. The design air change per hour minimums for residential buildings in ASHRAE 62.2, Ventilation for Acceptable Indoor Air Quality, shall be the maximum rates allowed for residential applications.
  2. No ventilation or air-conditioning system make-up air shall be provided to conditioned space from attics, crawlspaces, attached enclosed garages or outdoor spaces adjacent to swimming pools or spas.
  3. If ventilation air is drawn from enclosed space(s), then the walls of the space(s) from which air is drawn shall be insulated to a minimum of R-11 and the ceiling shall be insulated to a minimum of R-19, space permitting, or R-10 otherwise.
- R403.7 Heating and cooling equipment (Mandatory).**
- R403.7.1 Equipment sizing.** Heating and cooling equipment shall be sized in accordance with ACCA Manual S based on the equipment loads calculated in accordance with ACCA Manual J or other approved heating and cooling calculation methodologies, based on building loads for the directional orientation of the building. The manufacturer and model number of the outdoor and indoor units (if split system) shall be submitted along with the sensible and total cooling capacities at the design conditions described in Section R302.1. This Code does not allow designer safety factors, provisions for future expansion or other factors that affect equipment sizing. System sizing calculations shall not include loads created by local intermittent mechanical ventilation such as standard kitchen and bathroom exhaust systems. New or replacement heating and cooling equipment shall have an efficiency rating equal to or greater than the minimum required by federal law for the geographic location where the equipment is installed.

**TABLE R403.6.1  
WHOLE-HOUSE MECHANICAL VENTILATION SYSTEM FAN EFFICACY**

FAN LOCATION	AIRFLOW RATE MINIMUM (CFM)	MINIMUM EFFICACY <sup>a</sup> (CFM/WATT)	AIRFLOW RATE MAXIMUM (CFM)
Range hoods	Any	2.8 cfm/watt	Any
In-line fan	Any	2.8 cfm/watt	Any
Bathroom, utility room	10	1.4 cfm/watt	<90
Bathroom, utility room	90	2.8 cfm/watt	Any

For SI: 1 cfm = 28.3 L/min.

a.

When tested in accordance with HVI Standard 916



## MANDATORY REQUIREMENTS - (Continued)

- R403.7.1.1 Cooling equipment capacity.** Cooling only equipment shall be selected so that its total capacity is not less than the calculated total load but not more than 1.15 times greater than the total load calculated according to the procedure selected in Section 403.7, or the closest available size provided by the manufacturer's product lines. The corresponding latent capacity of the equipment shall not be less than the calculated latent load.

The published value for AHRI total capacity is a nominal, rating-test value and shall not be used for equipment sizing. Manufacturer's expanded performance data shall be used to select cooling-only equipment. This selection shall be based on the outdoor design dry-bulb temperature for the load calculation (or entering water temperature for water-source equipment), the blower CFM provided by the expanded performance data, the design value for entering wet-bulb temperature and the design value for entering dry-bulb temperature.

Design values for entering wet-bulb and dry-bulb temperatures shall be for the indoor dry bulb and relative humidity used for the load calculation and shall be adjusted for return side gains if the return duct(s) is installed in an unconditioned space.

### Exceptions:

1. Attached single- and multiple-family residential equipment sizing may be selected so that its cooling capacity is less than the calculated total sensible load but not less than 80 percent of that load.
2. When signed and sealed by a Florida-registered engineer, in attached single- and multiple-family units, the capacity of equipment may be sized in accordance with good design practice.

### R403.7.1.2 Heating equipment capacity.

- R403.7.1.2.1 Heat pumps.** Heat pump sizing shall be based on the cooling requirements as calculated according to Section R403.7.1.1, and the heat pump total cooling capacity shall not be more than 1.15 times greater than the design cooling load even if the design heating load is 1.15 times greater than the design cooling load.

- R403.7.1.2.2 Electric resistance furnaces.** Electric resistance furnaces shall be sized within 4 kW of the design requirements calculated according to the procedure selected in Section R403.7.1.

- R403.7.1.2.3 Fossil fuel heating equipment.** The capacity of fossil fuel heating equipment with natural draft atmospheric burners shall not be less than the design load calculated in accordance with Section R403.7.1.

- R403.7.1.3 Extra capacity required for special occasions.** Residences requiring excess cooling or heating equipment capacity on an intermittent basis, such as anticipated additional loads caused by major entertainment events, shall have equipment sized or controlled to prevent continuous space cooling or heating within that space by one or more of the following options:

1. A separate cooling or heating system is utilized to provide cooling or heating to the major entertainment areas.
2. A variable capacity system sized for optimum performance during base load periods is utilized.

- R403.8 Systems serving multiple dwelling units (Mandatory).** Systems serving multiple dwelling units shall comply with Sections C403 and C404 of the IECC—Commercial Provisions in lieu of Section R403.

- R403.9 Snow melt and ice system controls (Mandatory)** Snow- and ice-melting systems, supplied through energy service to the building, shall include automatic controls capable of shutting off the system when the pavement temperature is above 50°F (10°C), and no precipitation is falling and an automatic or manual control that will allow shutoff when the outdoor temperature is above 40°F (4.8°C).

- R403.10 Pools and permanent spa energy consumption (Mandatory).** The energy consumption of pools and permanent spas shall be in accordance with Sections R403.10.1 through R403.10.5.

- R403.10.1 Heaters.** The electric power to heaters shall be controlled by a readily accessible on-off switch that is an integral part of the heater mounted on the exterior of the heater, or external to and within 3 feet (914 mm) of the heater. Operation of such switch shall not change the setting of the heater thermostat. Such switches shall be in addition to a circuit breaker for the power to the heater. Gas-fired heaters shall not be equipped with continuously burning ignition pilots.

- R403.10.2 Time switches.** Time switches or other control methods that can automatically turn off and on according to a preset schedule shall be installed for heaters and pump motors. Heaters and pump motors that have built-in time switches shall be in compliance with this section.

### Exceptions:

1. Where public health standards require 24-hour pump operation.
2. Pumps that operate solar- and waste-heat-recovery pool heating systems.
3. Where pumps are powered exclusively from on-site renewable generation.

- R403.10.3 Covers.** Outdoor heated swimming pools and outdoor permanent spas shall be equipped with a vapor-retardant cover on or at the water surface or a liquid cover or other means proven to reduce heat loss.

**Exception:** Where more than 70 percent of the energy for heating, computed over an operation season, is from site-recovered energy, such as from a heat pump or solar energy source, covers or other vapor-retardant means shall not be required.

- R403.10.4 Gas- and oil-fired pool and spa heaters.** All gas- and oil-fired pool and spa heaters shall have a minimum thermal efficiency of 82 percent for heaters manufactured on or after April 16, 2013, when tested in accordance with ANSI Z 21.56. Pool heaters fired by natural or LP gas shall not have continuously burning pilot lights.

**R403.10.5 Heat pump pool heaters.** Heat pump pool heaters shall have a minimum COP of 4.0 when tested in accordance with AHRI 1160, Table 2, Standard Rating Conditions-Low Air Temperature. A test report from an independent laboratory is required to verify procedure compliance. Geothermal swimming pool heat pumps are not required to meet this standard.

**R403.11 Portable spas (Mandatory)** The energy consumption of electric-powered portable spas shall be controlled by the requirements of APSP-14.

## SECTION R404

### ELECTRICAL POWER AND LIGHTING SYSTEMS

**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.

**R404.1.1 Lighting equipment (Mandatory)** Fuel gas lighting systems shall not have continuously burning pilot lights.



2017 - AIR BARRIER AND INSULATION INSPECTION COMPONENT CRITERIA

TABLE 402.4.1.1  
AIR BARRIER AND INSULATION INSPECTION COMPONENT CRITERIA

Project Name: ██████████ Street: ██████████ City, State, Zip: ██████████ Owner: ██████████ Design Location: FL, Daytona Beach		Builder Name: ██████████ Permit Office: ██████████ Permit Number: ██████████ Jurisdiction: ██████████		CHECK
COMPONENT	AIR BARRIER CRITERIA	INSULATION INSTALLATION CRITERIA		
General requirements	A continuous air barrier shall be installed in the building envelope. The exterior thermal envelope contains a continuous air barrier. Breaks or joints in the air barrier shall be sealed.	Air-permeable insulation shall not be used as a sealing material.		
Ceiling/attic	The air barrier in any dropped ceiling/soffit shall be aligned with the insulation and any gaps in the air barrier shall be sealed. Access openings, drop down stairs or knee wall doors to unconditioned attic spaces shall be sealed.	The insulation in any dropped ceiling/soffit shall be aligned with the air barrier.		
Walls	The junction of the foundation and sill plate shall be sealed. The junction of the top plate and the top of exterior walls shall be sealed. Knee walls shall be sealed.	Cavities within corners and headers of frame walls shall be insulated by completely filling the cavity with a material having a thermal resistance of R-3 per inch minimum. Exterior thermal envelope insulation for framed walls shall be installed in substantial contact and continuous alignment with the air barrier.		
Windows, skylights and doors	The space between window/door jambs and framing, and skylights and framing shall be sealed.			
Rim joists	Rim joists shall include the air barrier.	Rim joists shall be insulated.		
Floors (including above-garage and cantilevered floors)	The air barrier shall be installed at any exposed edge of insulation.	Floor framing cavity insulation shall be installed to maintain permanent contact with the underside of subfloor decking, or floor framing cavity insulation shall be permitted to be in contact with the top side of sheathing, or continuous insulation installed on the underside of floor framing and extends from the bottom to the top of all perimeter floor framing members.		
Crawl space walls	Exposed earth in unvented crawl spaces shall be covered with a Class I vapor retarder with overlapping joints taped.	Where provided instead of floor insulation, insulation shall be permanently attached to the crawlspace		
Shafts, penetrations	Duct shafts, utility penetrations, and flue shafts opening to exterior or unconditioned space shall be sealed.			
Narrow cavities		Batts in narrow cavities shall be cut to fit, or narrow cavities shall be filled by insulation that on installation readily conforms to the available cavity spaces.		
Garage separation	Air sealing shall be provided between the garage and conditioned spaces.			
Recessed lighting	Recessed light fixtures installed in the building thermal envelope shall be sealed to the drywall.	Recessed light fixtures installed in the building thermal envelope shall be air tight and IC rated.		
Plumbing and wiring		Batt insulation shall be cut neatly to fit around wiring and plumbing in exterior walls, or insulation that on installation readily conforms to available space shall extend behind piping and wiring.		
Shower/tub on exterior wall	The air barrier installed at exterior walls adjacent to showers and tubs shall separate them from the showers and tubs.	Exterior walls adjacent to showers and tubs shall be insulated.		
Electrical/phone box on exterior walls	The air barrier shall be installed behind electrical or communication boxes or air-sealed boxes shall be installed.			
HVAC register boots	HVAC register boots that penetrate building thermal envelope shall be sealed to the sub-floor or drywall.			
Concealed sprinklers	When required to be sealed, concealed fire sprinklers shall only be sealed in a manner that is recommended by the manufacturer. Caulking or other adhesive sealants shall not be used to fill voids between fire sprinkler cover plates and walls or ceilings.			

a. In addition, inspection of log walls shall be in accordance with the provisions of ICC-400.

## **Item 6: Energy Code Classes for CEUs Update (2020)**

# **Item 6a: “Residential Plan Review” Class Outline**





# BROWARD COUNTY BOARD OF RULES AND APPEALS

## CONTINUING EDUCATION COURSE SYLLABUS

**COURSE TITLE:** RESIDENTIAL ENERGY CODE REVIEW

**HOURS OF CREDIT:** 2.0 “Energy” CEU’s  
100 Minutes of Instruction  
10 Minute Break

**PROVIDER INFORMATION:** BOARD OF RULES AND APPEALS  
  
1 N UNIVERSITY DR.  
PLANTATION, FL 33324  
954-765-4500  
[rulesboard@broward.org](mailto:rulesboard@broward.org)

Provider # PVD123

**COURSE DESCRIPTION & TARGET AUDIENCE:** This interactive, distanced, visual, webinar, is designed to provide Building Code Administrators, (Building), (Electrical), (Plumbing) & (Mechanical) Plans Examiners, and also (Building), (Mechanical), (Plumbing), (Residential Electrical) and (Residential) Inspectors, with information needed to accurately review Residential Buildings for **2020 Florida Energy Conservation Code** compliance. This course provides a step by step overview of what “Energy” related items are required to be shown on the building plans and code compliance documents and what to look for during Residential inspections for “Energy Code” compliance. Building Code Administrators, (Building), (Electrical), (Plumbing) & (Mechanical) Plans Examiners, and also (Building), (Mechanical), (Plumbing), (Residential Electrical) and (Residential) Inspectors, will be required to answer interactive questions throughout the class for attendance confirmation and evaluation and will be awarded 2.0 “Energy” CEU’s.

**COURSE PREREQUISITES:** None

**COURSE OBJECTIVES & GOALS:** Attendees will be taught Energy Code compliance methods, Data entry requirements, how to identify the common omissions and errors on Energy code compliance documents, the building plans, and on construction sites pertaining to the Residential section of the 2020 Florida Energy Conservation Code. When completed with this course, the code official will understand what the mandatory requirements of the Energy Code are, and identify what is required when the performance or prescriptive method is chosen for compliance.

# First Half of Class

## COURSE OUTLINE

## TIMELINE

- INTRODUCTION 5 Minutes CT  
Introduction to the course, instructor, and overview of the class format and the requirements for participation.
- FINDING YOUR WAY AROUND THE CODE BOOK 5 Minutes CT  
Explanation of the format of the Energy Code book, and finding the Commercial, Residential, & Existing sections. How to use the index.
- COMPLIANCE MATERIALS, CERTIFICATION & APPROVAL 5 Minutes CT  
Explanation of the different methods of compliance and the approval of documents. R105.5.1 & Table, R103.3.1 thru R103.1.1.2
- EXAMINATION OF DOCUMENTS AND PLAN REVISIONS 10 Minutes CT  
How to identify the compliance documents used, and the responsibility of the code professional. R103 & R103.4
- ONLINE QUESTION TO PARTICIPANTS VIA CHAT 5 Minutes CT  
Required Document Approval, R103.3 & R103.3.1
- INFORMATION REQUIRED ON PLANS & DOCUMENTS 5 Minutes CT  
What is required on the plans and compliance forms? R103.2
- INSULATION MATERIALS AND THEIR R-VALUES 10 Minutes CT  
Brief explanation of the thermal envelope and the required insulation for walls and ceilings, R103.2.1, R303.1.1.2 thru R303.1.1.2.2 & R405.2.1
- ONLINE QUESTION TO PARTICIPANTS VIA CHAT 5 Minutes CT  
Mandatory requirements for insulation, R103.2
- 10 MINUTE BREAK 10 Minutes Non-CT
- Total Class Time for First Half 50 Minutes
- Total Non-Class Time for First Half 10 Minutes

## Second Half of Class

### COURSE OUTLINE

### TIMELINE

<ul style="list-style-type: none"> <li>• <b>CALCULATION REQUIREMENTS FOR GLAZING</b> How to identify the required input data that is in the code calculation, Areas-R405.5.3.1, Orientations &amp; Overhangs, R405.5.3.2</li> </ul>	5 Minutes CT
<ul style="list-style-type: none"> <li>• <b>FESTRATION U-FACTORS AND SHGC &amp; AREA WEIGHTED UFACTOR AND SHGC CALCULATIONS</b> How the Energy code looks at the entire structure, R405.5.3.4</li> </ul>	5 Minutes CT
<ul style="list-style-type: none"> <li>• <b>NFRC TESTING &amp; WINDOW LABELING</b> Understanding the approval process and reading the Energy Labels, R105.5.1 &amp; Table R303.1.3</li> </ul>	5 Minutes CT
<ul style="list-style-type: none"> <li>• <b>MECHANICAL SYSTEM DESIGN CRITERIA</b> Explanation of load design and Manual J &amp; S R103.2, &amp; R302.1</li> </ul>	5 Minutes CT
<ul style="list-style-type: none"> <li>• <b>MECHANICAL &amp; SERVICE WATER HEATING SYSTEM &amp; EQUIPMENT TYPE, SIZES &amp; EFFICIENCY VERIFICATION</b> Identifying the efficiency of equipment and the requirements R103.2, R403.7, R403.5.6.2, R303.1.2</li> </ul>	5 Minutes CT
<ul style="list-style-type: none"> <li>• <b><u>ONLINE QUESTIONS TO PARTICIPANTS VIA CHAT</u></b> Missing Documentation, R405.6.3, R405.4.3</li> </ul>	5 Minutes CT
<ul style="list-style-type: none"> <li>• <b>EQUIPMENT AND SYSTEMS CONTROLS</b> What controls are required for pool heaters and A/C R103.2, R403.1, R403.10.1</li> </ul>	5 Minutes CT
<ul style="list-style-type: none"> <li>• <b>DUCT SEALING, DUCT AND PIPE INSULATION AND LOCATION</b> Explanation of mechanical attachment, sealing methods and insulation requirements. R403.3.2, C403.2.9.2, R303.1.1.2 thru R303.1.1.2.2, R403.4 Table R405.5.2 &amp; Table C403.2.9.2</li> </ul>	10 Minutes CT
<ul style="list-style-type: none"> <li>• <b>AIR SEALING DETAILS, TESTING</b> Sealing a home, air change requirements, and how to read the report R103.2, R402.4.1.2</li> </ul>	5 Minutes CT
<ul style="list-style-type: none"> <li>• <b><u>CLOSING REMARKS FROM PARTICIPANTS VIA CHAT &amp; EVALUATION FORM</u></b> Total Class Time for First Half Total Class Time Second Half</li> </ul>	Non-CT  50 Minutes
	<u>50 Minutes</u>
<b>TOTAL CLASSTIME FOR ENTIRE CLASS</b>	100 Minutes
<b>TOTAL NON-CLASS TIME FOR ENTIRE CLASS</b>	<u>10 Minutes</u>
<b>TOTAL TIME FOR WEBINAR</b>	<b>110 Minutes</b>

## **Item 7: City Plan Review Comments Update (2017)**



**Florida Energy  
Conservation Code  
Review Program**

## **Program Objectives**

1. Consistent and uniform enforcement of the current Florida Energy Conservation Code throughout Broward County as mandated by Florida Special Act Chapter 71-575, Section 9.02, Broward County Charter and Broward County Amendments to Chapter of the Florida Building Code.
2. Conduct electronic or physical plan reviews as it relates to the current Florida Energy Conservation Code in all available jurisdictions of Broward County to determine uniform compliance with \*C103.3, and \*R103.3 of the Florida Energy Conservation Code.
3. Assist the Building Official in determining a uniform set of responsibilities for each discipline for plan and inspection enforcement of the Florida Energy Conservation Code as mandated by \*Section 553, Part V of the Florida Statutes, \*C103.3.1 and \*R103.3.1 of the Florida Energy Conservation Code and \*Sections, 101.3, 101.4.7 and 110.3.7 of Chapter 1 of the Broward County administrative code.
4. Provide guidance to Plan Reviewers and Inspectors on ways to improve uniform code compliance of the Florida Energy Conservation Code.
5. Educate certified Plan reviewers and Inspectors of their responsibilities in the enforcement of the Florida Energy Conservation Code.

## **Florida Energy Conservation Code Program Steps**

1. Notify the Building Official and all discipline Chiefs of the program.
2. Communicate to all involved that this Energy plan review program is an audit and an educational program to improve efficiency and uniformity in enforcing the Florida Energy Conservation Code.
3. Request and receive from the Building Official or representative a digital copy of the complete building plans and the energy code compliance documents from all jurisdictions that have electronic plan submission capabilities or
4. Review the physical paper plans and energy code compliance documents provided by the Building Official or representative at the local jurisdiction while maintaining social distancing. (Digital plans preferred)
5. BORA will review the plans for energy code compliance and personally share the review results with the Plan Reviewers and then provide the Building Official and the correspondent discipline Chiefs with the corresponding code items and the BORA staff will compile these results to develop future education classes.

## **The Type of Plans:**

1. Residential and commercial plans will be chosen at random at the request of the Chief Energy Code Compliance Officer and emailed in pdf format to [tdecarion@broward.org](mailto:tdecarion@broward.org)
2. Building plans types requested are, new buildings, additions, and applicable alterations to existing buildings excluding exempt buildings per \*C101.4.2.4 and \*R101.4.2
3. BORA review will be done on the plans that are currently in the review process and the building permit has not been issued.

## **For any questions or comments on this program contact:**

Tim de Carion, Chief Energy Code Compliance Officer at [tdecarion@broward.org](mailto:tdecarion@broward.org) ; cell # 954-599-4205 or,

Jim DiPietro, BORA's Administrative Director at [JDIPIETRO@broward.org](mailto:JDIPIETRO@broward.org) ; cell #954-931-2393

## References

### Florida Statutes

#### **\*553.908 Thermal Efficiency Standards**

### 2017 Florida Energy Conservation Code

#### **\*C103.3 Examination of documents.**

The code official shall examine or cause to be examined the accompanying construction documents and shall ascertain whether the construction indicated and described is in accordance with the requirements of this code and other pertinent laws or ordinances. The code official is authorized to utilize a registered design professional, or other approved entity not affiliated with the building design or construction, in conducting the review of the plans and specifications for compliance with the code.

#### **\*R103.3 Examination of documents.**

The code official shall examine or cause to be examined the accompanying construction documents and shall ascertain whether the construction indicated and described is in accordance with the requirements of this code and other pertinent laws or ordinances. The code official is authorized to utilize a registered design professional, or other approved entity not affiliated with the building design or construction, in conducting the review of the plans and specifications for compliance with the code.

#### **\*C103.3.1 Approval of construction documents.**

When the code official issues a permit where construction documents are required, the construction documents shall be endorsed in writing and stamped "Reviewed for Code Compliance." Such approved construction documents shall not be changed, modified or altered without authorization from the code official. Work shall be done in accordance with the approved construction documents.

One set of construction documents so reviewed shall be retained by the code official. The other set shall be returned to the applicant, kept at the site of work and shall be open to inspection by the code official or a duly authorized representative.

#### **\*R103.3.1 Approval of construction documents.**

When the code official issues a permit where construction documents are required, the construction documents shall be endorsed in writing and stamped "Reviewed for Code Compliance." Such approved construction documents shall not be changed, modified or altered without authorization from the code official. Work shall be done in accordance with the approved construction documents.

One set of construction documents so reviewed shall be retained by the code official. The other set shall be returned to the applicant, kept at the site of work and shall be open to inspection by the code official or a duly authorized representative.

#### **\*C101.4.2.4 Buildings designed for purposes other than general space comfort conditioning.**

Any building where heating or cooling systems are provided which are designed for purposes other than general space comfort conditioning.

#### **\*R101.4.2 Exempt buildings.**

Buildings exempt from the provisions of the Florida Building Code, Energy Conservation, include existing buildings except those considered renovated buildings, changes of occupancy type or previously unconditioned buildings to which comfort conditioning is added. Exempt buildings include those specified in Sections R101.4.2.1 through R101.4.2.4.

### 2017 Chapter 1 Broward County Amendments Administration

**\*101.3 Intent.** The purpose of this Code is to establish the minimum requirements to safeguard, the public health, safety and general welfare through structural strength, means of egress, facilities, stability, sanitation, adequate light and ventilation, energy conservation, and safety to life and property from fire and other hazards attributed to the built environment and to provide safety to fire fighters and emergency responders during emergency operations.

**\*101.4.7 Energy.** The provisions of the FBC, Energy Conservation, shall apply to all matters governing the design and construction of buildings for energy efficiency.

**\*110.3.7 Energy efficiency inspections.** Inspections shall be made to determine compliance with FBC Energy Conservation and shall include, but not be limited to, inspections for: envelope insulation R- and U-values, fenestration U-value, duct system R-value, and HVAC and water heating equipment efficiency.

**Item 7a:** Code review of residential and commercial projects to date.



**2017 RESIDENTIAL ENERGY CODE PLAN REVIEW COMMENTS**

<b>Project:</b>	██████████	<b>Date:</b>	9-16-20
<b>Jurisdiction</b>	██████████	<b>Permit Number</b>	██████████

#	Drawing	Code	Comment Description
1	None provided	C501.1 C501.4 C503.1 C101.5.1 & C101.5.1.1	<b>General-</b> Energy code compliance documentation showing compliance has not been provided for this alteration. Please note: Existing building alterations and changes in occupancy where new items are installed are required to comply with the Florida Energy Code. Alterations, renovations and building systems may utilize Form C402. Form C402 can be found in Appendix CA.
2	None provided	C103.1.1.2	<b>General-</b> The building's owner, the owner's architect, or other authorized agent legally designated by the owner shall certify that the building follows the code
3	A700.1 Detail #3	C402.2.2	<b>Structural-</b> Please specify the purpose of the insulation on top of the ceiling tile. Insulation that is part of the thermal envelope cannot be placed directly on top of ceiling tiles unless it is used for sound only. Also, please check with the tile manufacturer if placing insulation on ceiling tile voids the UL listing of the tile. Some do not allow.
4	A700.1 & A200.2	C402.5.2	<b>Structural-</b> New Rolling/Garage doors shall meet u-value requirements and also be sealed to meet infiltration requirements
5	E-2	C103.2	<b>Electrical-</b> Provide Complete Lighting (Luminaire) fixture schedule with quantity, wattage, and control narrative to determine LPD required.
6	E-2	C405.4.2	<b>Electrical-</b> Show required design Lighting Power Density (LPD) from Energy Table and the installed (LPD) calculations on the Energy Compliance documents.
7	P-2 & 4	C103.2 C404.2	<b>Plumbing-</b> Please specify the size in BTU's/hr. and the efficiency of the water heaters on the plan
8	P-2 & 4	C103.2 [E]607.5 FPC & C404.4	<b>Plumbing-</b> Please specify any required HW pipe insulation R-value
9	None Provided	C403.2.1	<b>Mechanical-</b> Cooling and Heating load calculations are missing. Please provide calculations for each zone.

#	Drawing	Code	Comment Description
10	M-1	C103.2	<b>Mechanical-</b> Provide duct sealing details on the plan
11	M-1 & M-2	C403.2.9.1.2 & C403.2.14 & C403.2.16	<p><b>Mechanical-</b> Refrigeration plans not submitted, please comply with the following when plans are submitted:</p> <ul style="list-style-type: none"> <li>• Protect Refrigeration pipe insulation from damage on roof and show R-value on plans</li> <li>• Refrigeration Equipment to meet efficiency requirements when submitted</li> <li>• Walk-in coolers and freezers shall comply with C403.2.16 when plans are submitted.</li> </ul>
12	M-1	C408.2.2.1	<b>Mechanical-</b> Kitchen hood plans are not complete, please comply with balancing and control requirements to prevent depressurization of space and excess exhaust from hoods.

**2017 COMMERCIAL ENERGY CODE PLAN REVIEW COMMENTS**

<b>Project:</b>	████████████████████	<b>Date:</b>	10-7-2020
<b>Jurisdiction</b>	██████████	<b>Permit Number</b>	██████████

#	Drawing	Code	Comment Description
1	Energy Forms	C101.5.1	Input data report has not been submitted with Energy code compliance documents. Please see the notes on the computer-generated form that it must be printed and submitted for review.
2	Energy Forms	C103.1.1.1.2	Signatures and professional seals are required on the energy code forms from all designers
3	Energy Forms	C103.1.1.2	Certification signatures required from owner or architect or agent of owner..
4	E-1 &E-2	FBC-401.2, A90-4.2.2 & 9.2.1 & 9.7	Designer has chosen Ashrae 90.1 compliance method. Plans, specifications. and/or calculations must provide all information with which compliance can be determined for the interior lighting allowance (LPD). Information provided should include interior lighting power calculations, wattage of bulbs and ballasts, transformers, and control devices.
5	M-1	FBC-401.2, A90-6.4.3.4.2	Designer has chosen Ashrae 90.1 compliance method. Exhaust fans must have backdraft damper. None are noted or shown on the plan.
6	E1 & E2	FBC-401.2, A90-9.4.1.1	Designer has chosen Ashrae 90.1 compliance method. Interior Lighting Independent lighting controls installed per approved lighting plans and all manual controls are required to be readily accessible and visible to occupants.
7	E1 & E2	FBC-401.2, A90-9.4.1.1	Designer has chosen Ashrae 90.1 compliance method. Automatic control requirements prescribed in Table 9.6.1, for the appropriate space type, are to be installed. Mandatory lighting controls (labeled as REQ) and optional choice controls (labeled as 'ADD1' and 'ADD2') are implemented.
8	E-1 & E-2	FBC-401.2, A90-8.7.1 & 8.7.2 & 9.7.2.1 & 9.7.2.2 & 4.2.2	Designer has chosen Ashrae 90.1 compliance method. Construction documents must require that drawings and manuals be submitted to the owner
9			
10			
11			
12			

#	Drawing	Code	Comment Description

**2017 RESIDENTIAL ENERGY CODE PLAN REVIEW COMMENTS**

<b>Project:</b>	████████████████████	<b>Date:</b>	10-5-2020
<b>Jurisdiction</b>	████████	<b>Permit Number</b>	████████

#	Drawing	Code	Comment Description
1	#2/9 Floor Plan	R103.2	<b>Structural:</b> Drawing does not specify any design energy values for the windows. Show Energy values of design on the window schedule. Values are to be reflected on the plans and verified by NFRC
2	#6/9 Wall Sec. C6	R103.2, R402.2.4 & R303.2.1	<b>Structural:</b> Insulation type is not shown on the plan, Energy calcs show blown-in insulation type. Also, a wood framed, or equivalent baffle or retainer is required to be a minimum 10.24 inches tall for R-30 loose fill fiberglass insulation for access hatches and doors. Access shall be provided around the attic access that prevents damaging or compressing the insulation. A wood framed or equivalent baffle or retainer is required to be provided when loose-fill insulation is installed, the purpose of which is to prevent the loose-fill insulation from spilling into the living space when the attic access is opened, and to provide a permanent means of maintaining the installed R-value of the loose-fill insulation. This attic hatch is also required to be sealed for infiltration. Provide a detail showing energy compliance with attic hatch and needed baffle's.
3	M-2/2	R403.3.2	<b>Mechanical &amp; Structural:</b> The mechanical closet door in the garage must be sealed airtight when no enclosed support platform is installed. The air handler plan detail shows louvered door in garage with no enclosed support platform installed which violates both Mechanical and Energy code.
4	#6/9 Wall Sec. C6 Energy Calcs	R405.5.3.2 & R405.4.2	<b>Structural:</b> Overhang Depth & Separation shown on the plan do not match the Energy calculations, drawing show 1'-8 inch overhang depth and energy calcs show 2' foot overhang depth. Overhang Separation for 1 <sup>st</sup> floor windows shows about 14 feet and energy calculations show 1'-6". These must agree
5	Load Calcs	R403.7.1.1	<b>Mechanical:</b> Provide component details for Load calculations to verify errors above
6	P3/3	R403.5.6.2	<b>Plumbing:</b> Plumbing plan shows tankless water heater. Energy calcs. show a storage 50-gallon water heater using tank type rating with a .96 EF. The plumbing plan must match the energy code document provided.
7	Energy Calc's	R103.1.1.2	<b>General:</b> Owner Agent has not signed and certified the calculations.
8	Energy Calc's's	R103.2	<b>Structural:</b> Energy Calculations show exterior wall insulation and plan shows interior 4.1 foil, these must agree
9			
10			
11			
12			

#	Drawing	Code	Comment Description

**2017 RESIDENTIAL ENERGY CODE ITEMS OF CONCERN**

<b>Project:</b>	██████████	<b>Date:</b>	9-9-2020
<b>Jurisdiction</b>	██████████	<b>Permit Number</b>	██████████

#	Drawing	Code	Comment Description
1	A-2	R103.2	<b>Structural:</b> Drawing A-2 does not specify any energy values on window schedule. Low E windows are specified on the energy code documents; these values must be reflected on the plans. Verify energy values with NFRC and energy code documents.
2	S-3 Section A, B, & C	R103.2	<b>Structural:</b> Elevation views show a R-10 minimum ceiling insulation and the energy code documents show a R-30 minimum. It is required to specify the required R-values on the plans. If inspector does not have the energy code compliance documents on the job (which is common), the inspector does not know what is required. The plans should reflect the compliance documents.
3	S-2 Typ. Detail	R402.2.4	<b>Structural:</b> A wood framed, or equivalent baffle or retainer is required to be a minimum 10.24 inches tall for R-30 loose fill fiberglass insulation for access hatches and doors. Access shall be provided to all equipment that prevents damaging or compressing the insulation. A wood framed or equivalent baffle or retainer is required to be provided when loose-fill insulation is installed, the purpose of which is to prevent the loose-fill insulation from spilling into the living space when the attic access is opened, and to provide a permanent means of maintaining the installed R-value of the loose-fill insulation
4	S-2 Detail A	R-103.2 & R-103.3	<b>Structural:</b> Wall section shows R-4.2 foil insulation and Compliance documents show R-4.1, These must agree.
5	A-2, A-3, & Energy Docs.	R405.5.3.1	<b>General:</b> The total quantity of windows and sliding doors from floor plan and elevation views do not agree with Energy code documents. Glass area Per plan shows “nine.” Glass openings, Two sliding glass doors, three windows in the rear, three front windows, and one right side window. Per Energy code documents: show “thirteen” glass openings. These must agree.
6	A-3, & Energy Docs.	R405.5.3.2 & R405.4.2	<b>General:</b> Energy code documents contain incorrect orientations and overhang values even when worst case is applied.
7	P-1	R103.2 & R403.5.6.2	<b>Plumbing:</b> The water heater size, type, and efficiency are not shown on the plans. This is required for inspector’s final inspection so he can check the energy value of the water heater.
8	E-1	R402.4.5	<b>Electrical:</b> Please specify that the recessed lighting luminaires installed in the building thermal envelope shall be sealed to limit air leakage between conditioned and unconditioned spaces. All recessed luminaires shall be IC-rated and labeled as having an air leakage rate not more than 2.0 cfm (0.944 L/s) when tested in accordance with ASTM E283 at a 1.57 psf. (75 Pa) pressure differential. All recessed luminaires shall be sealed with a gasket or caulk between the housing and the interior wall or ceiling covering.



#	Drawing	Code	Comment Description
9	E-1	R404.1	<b>Electrical:</b> The Lighting equipment efficiency shall be specified on the plan. 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 except low voltage lighting.
10	M-1	R103.2 & R401.3	<b>Mechanical:</b> The Seer of A/C system shown on the equipment schedule does not match what is shown on the Energy compliance documents. Although the seer shown on the plan is higher than the energy compliance documents, it does not match the compliance documents. An accurate rating of the home must include correct values. It is also required that the EPL Card signed by the builder be an accurate document with correct installed values.
11	Load Calcs.	R403.7.1.1	<b>Mechanical:</b> The Heating and cooling loads (Manual J and S) does not match the equipment shown on the a/c plan. Manual S provided shows 3-1/2-ton unit selected and equipment schedule on plans show 2-1/2-ton unit. These must agree and meet load and not be greater than 115% of total load.
12	M-1	R103.2; R403.3.2 & Table C403.2.9.2	<b>Mechanical:</b> Duct sealing details are not shown on mechanical plan. Sealing flex duct with UL 181AB tape is a common practice in South Florida but mastic is an option and can be a better seal over time. Sometimes contractors will use both tape and mastic together to seal flex ducts even though only one is required. Many contractors unfortunately still think the use of a draw-band is a sufficient method to seal flex ductwork. A draw-band is only a mechanical attachment and not to be used alone without tape or mastic as a seal. The same is true for tabs on collars. Collars also must be sealed in addition to mechanically attaching collars to fiberglass duct by bending tabs.