



# 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 Pellegrer  
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

### **Vacant**

Structural Engineer  
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 Energy Conservation Committee

D. Rice, P.E.      M. Charmin      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 G. de Carion, Chief Energy Code Compliance Officer

**Date:** January 14, 2021

**Subj:** Residential Energy Guidelines

The Chairman of Energy Conservation Committee, Mr. Dave Rice P.E. called for a meeting of the Energy Conservation Committee for the items listed.

## AGENDA

### **Roll Call**

**Approval of Minutes** – October 26, 2020

### **Chairman's Opening Remarks**

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

### **Regular Meeting**

<b><u>Item 1: Guidelines Overview</u></b> .....	<b>Pg. 3</b>	BORA Res. Energy Guidelines
<b><u>Item 2: Building Official's Responsibilities</u></b> .....	<b>Pg. 4</b>	BORA Res. Energy Guidelines
<b><u>Item 3: Structural Checklist</u></b> .....	<b>Pg. 5-6</b>	BORA Res. Energy Guidelines
<b><u>Item 4: Mechanical Checklist</u></b> .....	<b>Pg. 7-9</b>	BORA Res. Energy Guidelines
<b><u>Item 5: Plumbing Checklist</u></b> .....	<b>Pg. 10</b>	BORA Res. Energy Guidelines
<b><u>Item 6: Electrical Checklist</u></b> .....	<b>Pg. 11</b>	BORA Res. Energy Guidelines

### **General Discussion**

### **Schedule Next Meeting**

### **Adjournment**

### **Reference Documents for Committee Use**

- 1) BORA Residential Energy Guidelines
- 2) Sample Residential Compliance Form R405-2020

*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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## MEETING OF THE AD HOC ENERGY CONSERVATION COMMITTEE

Minutes  
October 26, 2020

**DRAFT**

### Call to order:

Chair David Rice, P.E. called a published meeting of the Broward County Board of Rules and Appeals Ad Hoc Conservation Committee to order at 2:00pm.

The roll was called, and the following members were present:

### Present:

Mike Charnin  
Samantha Danchuck  
Tim Fallon  
Wyatt T. Haygood

Eric Jenison  
Art Kamm, P.E.  
Brian Lomel, P.E.  
David Rice, P.E.

John Travers  
Dennis Ulmer  
Bob Volin  
Abbas Zackria, CSI

Staff: Timothy de Carion, Chief Energy Code Compliance Officer

### Item 1: Mission Statement

The committee members took the time to introduce themselves, sharing their professional backgrounds and areas of expertise.

Mr. Timothy de Carion, Board of Rules and Appeals, Chief Energy Code Compliance Officer, thanked the committee members for attending the meeting and sharing their knowledge with the committee.

Chair David Rice, P.E., R.C. Engineering, Inc., read the Ad Hoc Energy Conservation Committee's mission statement aloud. He shared that the mission statement has the potential to be altered and invited the committee members submit their ideas to him.

**NO MOTION.**

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

Chair Rice gave some background information about the advisory opinion from the Board Attorney, Charles M. Kramer. He explained that the committee cannot introduce code changes because the law cannot be changed. For the code to be changed, the changes must be made through the Florida Building Commission's Energy Technical Advisory Committee (TAC).

The Ad Hoc Energy Conservation Committee will cite the existing code to assist inspectors with enforcing the code.

**NO MOTION.**

## **Item 3: Sunshine Law Review for All Members**

Chair Rice explained the Florida Sunshine Law to the committee members. The Sunshine Law declares that per State statute, Advisory Board members cannot communicate with each other on a possible committee or Board topic outside of a public meeting. This law diminishes the potential for collusion and manipulation.

The Board of Rules and Appeals staff will serve as a resource for questions and comments because staff members cannot vote on agenda items.

**NO MOTION.**

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

Chair Rice gave a brief overview of the BORA Energy Guidelines. He requested assistance for the checklists included in the guidelines document. He explained that he is most well versed in the electrical code, but he would like the committee members to share their expertise in other disciplines (i.e. Mechanical, Residential, etc.) in the Florida Building Code. Chair Rice said that the goal is for the guidelines to be used in conjunction with the code during inspections and in plan review.

Mr. de Carion said that he intends to complete a lot of what is currently missing from the checklists by utilizing the mandatory requirements of the code.

Ms. Samantha Danchuck, Broward County Environmental Protection, asked if the goal is to list every code independently or create a short list of the priority codes. She added that because there are so many codes, the checklist has the potential to be difficult to use rather than serving as a valuable tool.

Mr. Bob Volin, Air Design Concepts, stated that the energy code is the only code that should be discussed.

Chair Rice said that he would like the checklist to be around ten pages, to prevent it from being too long to be helpful.

Mr. Brian Lomel, P.E., TLC Engineering, asked when the committee members comments on the guidelines document should be submitted. Chair Rice said that he would like Mr. de Carion's changes to be added before the committee members make changes.

Mr. James DiPietro, Administrative Director, Board of Rules and Appeals, clarified that the committee members changes should be submitted to Tim as soon as possible. This will give more of an opportunity to have everyone's changes included in the next committee meeting agenda.

**NO MOTION.**

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

Mr. de Carion said that he wanted to start with a residential checklist before a commercial one. He would like the checklists to be organized separately to avoid any confusion since they are separate codes. While reviewing Form R405-2017, he explained the importance of utilizing the checklists. He added that many code officials do not often employ the checklist because its value is not often emphasized. Mr. de Carion went through a few completed forms to illustrate how the forms should be used and the information that they provide.

Mr. de Carion affirmed that code officials should take the time to review the checklists because there are often errors that can be discovered by reviewing the checklists.

Since the checklists have the potential to be an informational resource for code officials, Mr. de Carion encouraged the committee members to share their opinions about what they believe should be added to the checklists.

Chair Rice added that he would like everyone to submit their comments if they have any. He would like to work through the checklists one subject at a time and have a revised draft at the upcoming committee meetings.

**NO MOTION.**

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

Mr. de Carion created a "Residential Energy Code Review" continuing education course. The class has the potential to offer CEUs. He guided the committee members through the outline that he prepared for the class, allowing them to gain an understanding of what the course will cover.

**NO MOTION.**

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

Mr. de Carion introduced the new Florida Energy Conservation Code Review Program. The program will offer plan review to municipal building departments throughout Broward County. He explained that he is performing the plan reviews digitally. He shared a few examples of completed 2017 Residential and Commercial Energy Code Plan Review forms. The forms delineate what is missing from the plans.

Chair Rice added that this new program is a coordinated effort between the Board of Rules and Appeals and the building departments.

**NO MOTION.**

Chair Rice announced that he would like to schedule another Energy Conservation Committee Meeting in four weeks and use that time to go into greater detail about the guidelines.

**A MOTION WAS MADE BY MR. LOMEL AND SECONDED BY MR. TRAVERS TO ADJOURN THE MEETING. THE MOTION PASSED BY UNANIMOUS VOTE.**

**Adjournment**

Having no further business to go before the Committee, the meeting adjourned at 3:36pm.

***DRAFT***

# **BORA Residential Energy Guidelines**

**Items 1 - 6**

# **BORA Residential Energy Guidelines**

**Broward County Board of Rules and Appeals**

**Energy Conservation  
Seventh Edition (2020)**



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

For BORA Approval  
Date: 1/19/2021

## **Table of Contents**

<b><u>Section</u></b>	<b><u>Page</u></b>
Title page	1
Table of Contents	2
Overview	3
Building Code Administrators, Responsibilities	4
Building/Structural Checklist	5-6
Mechanical Checklist	7-9
Plumbing Checklist	10
Electrical Checklist	11

## BORA Energy Guidelines

### **Overview**

In order to obtain uniform energy code enforcement in residential and commercial buildings in Broward County, the Energy Conservation Committee has developed guidelines to aid jurisdictions in determining which discipline specific code official enforces certain sections of the 2020 Florida Building Code Energy Conservation.

The following code sections regarding enforcement duties are as stated:

#### ***R103.3 & 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.*

#### ***R103.3.1 & 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."*

#### ***R104.1 & C104.1 General***

*Construction or work for which a permit is required shall be subject to inspection by the code official or his or her designated agent, and such construction or work shall remain accessible and exposed for inspection purposes until approved.*

### **Basis for the Guidelines:**

The Florida Building Code Seventh Edition (2020) Energy Conservation for new and existing buildings has designated that the *code official* is responsible for both the construction document approval and construction inspection approval.

Unfortunately, the Florida Building Code Energy Conservation administrative chapters do not designate which *discipline specific code official* will review compliance documents and building plans and inspect specific items for code compliance found in the Energy Conservation Code.

The "building official" or "code official" for energy code purposes shall be defined as: The officer or other designated authority having jurisdiction charged with the administration and enforcement of this standard or a duly authorized representative.

Broward County is unique in that we have individual certified plan review and inspection personnel for each discipline and that a multi-discipline code official is not the norm. Subsequently, uniformity has been lacking in the enforcement of the energy code which created confusion by code officials over which specific disciplines will enforce certain provisions of the code.

This guide can be used as a tool for the Building Official to determine which discipline specific code official will review and inspect specific sections of the Energy Code for code compliance to address those issues. This guide shall not prevent any certified code official with issuing a correction notice for any Energy Code deficiency found in another discipline if they notify the Chief inspector of that discipline of the correction notice.

# BORA Energy Guidelines

## **Building Code Administrators Responsibilities**

### **Plan Review**

- 1. Verify that the plans and code compliance documents have been reviewed for energy code compliance by all disciplines and then sign the code compliance document stating that the plans will be inspected according to the Florida Energy Conservation Code.

### **Code Section**

R103.3  
R103.3.1  
FS. 553.908

### **Certificate of Occupancy**

- 1. Verify that the EPL display card is completed and signed by the building qualifier and it accurately reflects the approved plans and specifications submitted to demonstrate code compliance for the building. This document shall be provided to the purchaser of the home at time of title transfer

### **Code Section**

R401.3  
R405.4.3 #1

### **Reporting Schedule**

- 1. A reporting form shall be submitted to the local building department by the owner or owner's agent with the submittal certifying compliance with this code. Reporting forms shall be a copy of the front page of the compliance form applicable for the code chapter under which compliance is demonstrated (R405-2020). It shall be the responsibility of the local building official to forward the reporting section of the proper form to the entity representing the Florida Building Commission on a quarterly basis.

### **Code Section**

R103.1.1.2.1  
R103.1.1.2.1.1

### **Send reporting form to:**

M. E. Rinker, Sr. School of Construction Management  
University of Florida  
Attn: R. Raymond Issa  
PO Box 115703  
304 Rinker, Third Floor  
Gainesville, FL 32611-5703 USA

## BORA Energy Guidelines

### **BORA Structural Checklist**

<b><u>Plan Review Comments</u></b>	<b><u>Code Section</u></b>
<input type="checkbox"/> 1. The energy code compliance report shall include the name and the code version of the compliance software used. The energy compliance software must match the corresponding code version based on the application date.	R405.4.2.1 #6
<input type="checkbox"/> 2. The energy code compliance report shall include the building street address and/or other site identification. Batch sampling of report is prohibited. Climate Zone #1 shall be selected for the Broward County area.	R405.4.2.1 #1 R405.4.2 R301.3
<input type="checkbox"/> 3. The energy code compliance report shall include the name of the person who prepared the report and a signature certifying that the proposed design complies with the energy code.	R405.4.2.1 #2 R405.4.2.1 #5
<input type="checkbox"/> 4. The building's owner, or architect, or "owner/agent", shall certify compliance with the Florida Energy Code by signing the prepared energy code compliance report.	R103.1.1.2 R405.4.2.1 #2
<input type="checkbox"/> 5. The energy code compliance report shall have the correct number of bedrooms listed.	R405.5.2
<input type="checkbox"/> 6. Conditioned floor area and total area volume shall be clearly indicated on the construction documents, and the plans must indicate the locations of the building thermal envelope.	R103.2.1 R405.5.2
<input type="checkbox"/> 7. Window schedules shall include the proposed "NFRC tested" design U-Factors and SHGC values of the windows to match the energy code compliance report.	R103.2 #2 R405.4.3 #2.
<input type="checkbox"/> 8. Wall section details are to include the proposed ceiling and wall insulation types and R-Values to match the energy code compliance report.	R103.2 #1
<input type="checkbox"/> 9. Air Barrier sealing details and materials used shall be shown on the plans.	R103.2 #8

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<b><u>Rough Inspection Comments</u></b>	<b><u>Code Section</u></b>
<input type="checkbox"/> 1. A continuous air barrier shall be installed to the exterior building thermal envelope.	R402.4.1.1
<input type="checkbox"/> 2. The space between the window/door jambs and framing, and skylights and framing shall be sealed.	R402.4.1.1
<input type="checkbox"/> 3. Ceiling and wall insulation R-Values shall be in installed accordance with plans, manufacturer's instructions, and energy code compliance report. Minimum R-value rates shall not be used where energy code compliance report shows a greater proposed value. Baffling of the attic vent openings shall be provided for blown-in insulation.	R405.5.2 R303.2 R303.2.1
<input type="checkbox"/> 4. Window (Fenestration) efficiency ratings shall be certified and labeled by the manufacturer. Labels should match the proposed design U-Value and SHGC listed on the window schedule and energy code compliance report. Design must have either an area weighted average maximum fenestration SHGC of 0.50 or a window area-weighted average overhang depth of 4.0 feet or greater.	R103.2 #2 R303.1.3 R405.5.3.4 R405.5.2 XXXXXXX

## BORA Energy Guidelines

### **BORA Structural Checklist**

#### **Final Inspection Comments**

	<b><u>Code Section</u></b>
<input type="checkbox"/> 1. Blown-in insulation must have an insulation certificate posted at or near the opening of the attic in a conspicuous place and insulation certificates must be submitted to the AHJ.	R303.1.1.2 FTCR 460
<input type="checkbox"/> 2. Blown or sprayed insulation shall be installed per inch as proposed on approved plans and energy code compliance report. Blown insulation thickness shall be verified with markers installed every 300 sq. ft. Eave baffles to be verified and attic vents shall not be covered. Sprayed insulation shall be listed and certified by the installation installer.	R303.1.1.2.1 R402.2.3
<input type="checkbox"/> 3. Access-openings, drop down stairs or knee wall doors to unconditioned attic spaces shall be sealed and baffled to maintain blown insulation.	R402.2.4 R402.4
<input type="checkbox"/> 4. Air sealing shall be provided for the interior garage door and the walls that separate conditioned spaces from the garage area shall be sealed.	R402.4.1.1
<input type="checkbox"/> 5. Any changes which effect the energy efficiency of the building made during construction, that are not in compliance with the approved plans and the energy code compliance report, shall be resubmitted for approval as a revised (amended) set of construction documents.	R103.4

Note: This is a minimum checklist. The local AHJ may have additional checklist items.

## BORA Energy Guidelines

### **BORA Mechanical Checklist**

<b><u>Plan Review Comments</u></b>	<b><u>Code Section</u></b>
<input type="checkbox"/> 1. Conditioned floor area shown on energy code compliance report shall match the floor plans.	R405.4.2.1
<input type="checkbox"/> 2. Ceiling types, ceiling areas, and proposed insulation R-values are to be shown on the energy compliance report and shall match the plans, details, and wall sections. Knee walls shall be included as ceiling area and shall be listed separately.	R405.5.2
<input type="checkbox"/> 3. Wall types, area, and R-value shown on energy compliance report shall match the plans, details, and wall sections. Both exterior walls and the adjacent garage wall are to be shown with correct areas and R-Values. Adjacent framed garage walls shall be listed separately into the compliance software.	R405.5.2
<input type="checkbox"/> 4. Window types, areas, and tested design U-Values and SHGC listed on compliance report shall match the propose design on the window schedule. Sliding glass doors and opaque doors with glazing equal to or over 30% of total area are to be included in glazing calculation.	R-405.5.2 R405.5.3.3
<input type="checkbox"/> 5. Window overhang depth (which is the horizontal measure protruding from the building) and the separation (which is the vertical distance from the overhang to the top of the window) must be accurately entered for each window into the compliance report.	R405.5.3.2
<input type="checkbox"/> 6. All floor areas and corresponding R-values such as the floor over the garage area and the first-floor entry area shall be shown on the compliance report.	R405.5.2
<input type="checkbox"/> 7. R-Value of ducts, surface area, and the location of ductwork must be accurately entered into the compliance report. The location of the air handler listed on the compliance report must match the mechanical plans. Verify if the ductwork is classified as “leak free” or default leakage” to determine if duct testing is required.	R405.2 R405.2.3
<input type="checkbox"/> 8. Verify the number of A/C systems, the efficiency rating of each system the size of the equipment, and compare it to the equipment schedule and compliance report.	R405.5.2
<input type="checkbox"/> 9. Verify the heater type, size, and fuel source to be either electric, gas or Heat Pump and compare it to the equipment schedule and compliance report.	R405.5.2
<input type="checkbox"/> 10. Energy credits reflected on the compliance report must be shown on the plans. Credits must meet specific required criteria in the code. Possible credits shown are: PSTAT, RB, CV, WHF, CF, HRU, and HP options are to be verified.	R405.7
<input type="checkbox"/> 11. Site plan showing home orientation must match the input data for each wall, door and window. Worst case orientations shall be accepted.	R405.4.2 R405.4.2.1
<input type="checkbox"/> 12. Cooling and Heating load calculations (per zone) (“Manual J Equivalent) shall be submitted and attached to the energy code compliance report. Equipment selected for cooling shall be sized in accordance with Manual S and shall meet the calculated load and not be oversized more than 115% of the total calculated load. Electric resistance furnaces shall be sized within 4 kW of the design requirements.	R403.7 R403.7.1 R403.7.1.2.2
<input type="checkbox"/> 13. Mechanical system design criteria and equipment controls (T-stat) shall be shown on the plans.	R103.2 #4 R103.2 #6
<input type="checkbox"/> 14. Duct sealing, duct and pipe insulation and locations shall be shown on the plans.	R103.2 #7

## BORA Energy Guidelines

### BORA Mechanical Checklist

<u>Rough Inspection Comments</u>	<u>Code Section</u>
<input type="checkbox"/> 1. Building framing cavities shall not be used as ducts or plenums.	R403.3.3.5
<input type="checkbox"/> 2. Air-handling units can only be installed in the attic unless all criteria's of R405 are met. a) The service panel of the equipment shall be located within 6 feet of an attic access. b) The attic access opening is of sufficient size to replace the air handler.	R403.3.6
<input type="checkbox"/> 3. Mechanical system piping shall be insulated to a minimum of R-3. All supply and return ducts not completely inside the <i>building thermal envelope</i> shall be insulated to a minimum of R-6.	R403.4 R405.2
<input type="checkbox"/> 4. All ducts shall be mechanically attached and sealed in accordance with Section C403.2.9.2. The reinforced lining shall be sealed, and the duct collar fitting's integral flange shall be sealed to the rigid duct board using tape or mastic. The reinforced core shall be mechanically attached to the duct fitting by a draw-band. The outer jacket of the flexible duct section shall be secured at the juncture of the air distribution system component and intermediate or terminal fitting in such a way as to prevent excess condensation. Ducts shall be tested at rough or final if duct testing credit is taken.	R403.3.2 C403.2.9.2 R403.3.3 R405.2.3
<input type="checkbox"/> 5. If possible, sufficient space shall be given to install required ceiling and wall insulation around ducts and pipes. 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 space.	R402.4.1.1
<input type="checkbox"/> 6. New wood burning fireplaces shall have replacement outdoor combustion air.	R402.4.2

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<u>Final Inspection Comments</u>	<u>Code Section</u>
<input type="checkbox"/> 1. HVAC supply and return register boots that penetrate the building thermal envelope shall be sealed to the drywall subfloor, wall covering, or ceiling penetrated by the boot. Penetrations of the air barrier shall be caulked, gasketed or otherwise sealed in a manner compatible with the construction materials and location.	R402.4.1.1
<input type="checkbox"/> 2. Sufficient space (about 4 inches) shall be provided adjacent to all mechanical components located in or forming a part of the air distribution system to assure adequate access for: (1) Construction and sealing in accordance with the requirements of Section C403.2.9. (2) Inspection (3) Cleaning and maintenance.	R403.3.2 C403.2.9.3.3
<input type="checkbox"/> 3. The efficiency rating of each system shall be verified by providing the (ARHI) Certificate showing the corresponding model numbers obtained from The Air Conditioning, Heating & Refrigeration Institute directory. ( <a href="http://www.ahridirectroy.org">www.ahridirectroy.org</a> )	R405.4.3 #2 R303.1.2
<input type="checkbox"/> 4. Mechanical closets and enclosed support platforms that form the primary air containment passageways for air distribution systems shall be sealed in accordance with the applicable criteria of this section and Table C403.2.9.2.	R403.3.2 C403.2.9.2
<input type="checkbox"/> 5. 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.	R403.4.1
<input type="checkbox"/> 6. Outdoor air intakes and exhausts shall have automatic or gravity dampers that close when the ventilation system is not operating.	R403.6

BORA Energy Guidelines  
**BORA Mechanical Checklist**

**Final Inspection Comments Cont.**

	<b><u>Code Section</u></b>
<input type="checkbox"/> 7. New wood burning fireplaces shall have tight fitting flue dampers or tight-fitting doors. Outdoor combustion air is to be verified as installed per manufacturer's instructions.	R402.4.2 R303.2
<input type="checkbox"/> 8. An envelope leakage test report shall be submitted showing the building or dwelling unit was tested and verified as having an air leakage rate not exceeding seven (7) air changes per hour. Also, leakage rates shall not exceed the rate chosen if using performance method R405. Buildings with air changes per hr. less than three (3) shall be provided with whole house mechanical ventilation in accordance with the Residential Building Code.	R405.2.2 R402.4.1.2 RBC303.4 R403.6 M1507.3
<input type="checkbox"/> 9. Air duct leakage testing report shall be submitted when "leak free" duct credit is taken using performance method R405. Test can be performed at rough or post construction.	R405.2.3 R403.3.3
<input type="checkbox"/> 10. 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	R403.3.2.1
<input type="checkbox"/> 11. When an air handler is installed in the attic, a notice shall be placed in the electrical panel.	R403.3.6 #4
<input type="checkbox"/> 12. Any changes made during construction that are not in compliance with the approved plans and energy compliance report (calculations) shall be resubmitted for approval as an amended/revised set of construction documents.	R103.4

Note: This is a minimum checklist. The local AHJ may have additional checklist items.

BORA Energy Guidelines  
BORA Plumbing Checklist

<u>Plan Review Comments</u>	<u>Code Section</u>
<input type="checkbox"/> 1. Service water heating appliance size and efficiency shown on the plan must match the size and efficiency proposed on the compliance report. Water-heating equipment installed in residential units shall meet the minimum efficiencies of Table C404.2.	R405.5.2 R403.5.6.2
<input type="checkbox"/> 2. Service water heating appliance size and efficiency must be shown on the plumbing plans. Provide AHRI efficiency documentation for water heaters. ( <a href="http://www.ahridirectroy.org">www.ahridirectroy.org</a> ).	R103.2 #5 R403.5.6 R405.4.3 #2
<input type="checkbox"/> 3. Gas and oil-fired pool and spa heaters shall have a tested minimum thermal efficiency of 82 percent in accordance with ANSI Z 21.56. Documentation shall be provided.	R103.2 #5 R403.10.4
<input type="checkbox"/> 4. Heat pump pool heaters shall have a minimum COP of 4.0 when tested by a independent laboratory in accordance with AHRI 1160. Documentation shall be provided.	R103.2 #5 R403.10.5
<input type="checkbox"/> 5. If a heated water circulation system is installed, it shall be provided with a circulation pump that will start on demand. The system return pipe shall be a dedicated return pipe or a cold-water supply pipe. Controls shall stop the pump when desired temperature is reached and there is no longer any demand for hot water.	R403.5.1

<u>Rough Inspection Comments</u>	<u>Code Section</u>
<input type="checkbox"/> 1. Sufficient space shall be left for insulation on exterior walls adjacent to showers and tubs.	R402.4.1.1
<input type="checkbox"/> 2. If a heated water circulation system is installed it shall be provided with an accessible circulation pump and the automatic controls, temperature sensors, and manual controls and shall be readily accessible for operation.	R403.5.1

<u>Final Inspection Comments</u>	<u>Code Section</u>
<input type="checkbox"/> 1. Storage water heating equipment efficiencies shall be verified by the model number and match the AHRI provided during plan review. Different equipment efficiencies require a revised compliance document.	R403.5.6.2
<input type="checkbox"/> 2. Electric, gas, and oil type pool and spa heating equipment efficiencies shall be verified and meet the minimum efficiency requirements. Residential pools shall meet the requirements of APSP-15 (Standard for Energy Efficiency for Residential Inground Swimming Pools & Spa's)	R403.10 R403.11 R403.12
<input type="checkbox"/> 3. Gas and oil type water heaters for permanent pools and 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 and be on the job for final inspection. Heat pump and solar type heaters are excluded from this requirement.	R403.10.3
<input type="checkbox"/> 4. A separate valve shall be provided on combustion type gas water heaters to shut off fuel to the main burner.	R403.5.6.1.2
<input type="checkbox"/> 5. Any changes made during construction that are not in compliance with the approved plans and energy compliance report (calculations) shall be resubmitted for approval as an amended/revised set of construction documents.	R103.4
<input type="checkbox"/> 6. The electric power to pool 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. Pool and spa equipment shall have time switches or other control methods that can automatically turn off and on according to a preset schedule	R403.10.1 R403.10.2

Note: This is a minimum checklist. The local AHJ may have additional checklist items.

## BORA Energy Guidelines

### **BORA Electrical Checklist**

#### **Plan Review Comments**

- |   | <b><u>Code Section</u></b> |
|---|----------------------------|
| <input type="checkbox"/> 1. Comfort heating and service water heating appliance types must match the fuel type chosen on the compliance report.   | R405.4.2                   |
| <input type="checkbox"/> 2. The electrical floor plans shall clearly identify all recessed luminaires that are installed in the "Building Thermal Envelope, and shall show sealing details.   | R402.4.5<br>R103.2 #8      |
| <input type="checkbox"/> 3. Recessed lighting shall be IC-rated and <i>labeled</i> as having an air leakage rate not more than 2.0 cfm when tested in accordance with ASTM E283   | R402.4.5                   |
| <input type="checkbox"/> 4. The Luminaire Schedule shall clearly identify the "high efficacy lamps". 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. | R404.1.1                   |
- 

#### **Rough Inspection Comments**

- |  | <b><u>Code Section</u></b> |
|--|----------------------------|
| <input type="checkbox"/> 1. An air barrier shall be installed behind electrical or communication boxes or air sealed boxes shall be installed. | R402.4.1.1                 |
- 

#### **Final Inspection Comments**

- |   | <b><u>Code Section</u></b> |
|---|----------------------------|
| <input type="checkbox"/> 1. 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 sealed with a gasket or caulk between the housing and the interior wall or ceiling covering. | R402.4.5                   |
| <input type="checkbox"/> 2. All installed luminaires are to be installed per the luminaire schedule.  | R404.1                     |
| <input type="checkbox"/> 3. A separate switch or a clearly marked SWD type circuit breaker shall be provided to permit the power supplied to electric water heater service systems to be turned off when the home is unoccupied.  | R403.5.6.1.2               |
| <input type="checkbox"/> 4. Any changes made during construction that are not in compliance with the approved plans and energy compliance report (calculations) shall be resubmitted for approval as an amended/ revised set of construction documents.   | R103.4                     |

Note: This is a minimum checklist. The local AHJ may have additional checklist items.

## **Reference Document #2:**

Sample Residential Compliance Form R405-2020

## RESIDENTIAL ENERGY CONSERVATION CODE DOCUMENTATION CHECKLIST

### Florida Department of Business and Professional Regulation Simulated Performance Alternative (Performance) Method

**Applications for compliance with the 2020 Florida Building Code, Energy Conservation via the Residential Simulated Performance Alternative shall include:**

- This checklist
- Form R405-2020 report
- Input summary checklist that can be used for field verification (usually four 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:**

- Air Barrier and Insulation Inspection Component Criteria checklist (Table R402.4.1.1 - one page)
- A completed 2020 Envelope Leakage Test Report (usually one page); exception in R402.4 allows dwelling units of R-2 Occupancies and multiple attached single family dwellings to comply with Section C403.9
- If Form R405 duct leakage type indicates anything other than "default leakage", then a completed 2020 Duct Leakage Test Report - Performance Method (usually one page)

DEMONSTRATION PURPOSES ONLY

# FLORIDA ENERGY EFFICIENCY CODE FOR BUILDING CONSTRUCTION

Florida Department of Business and Professional Regulation - Residential Performance Method

Project Name: Example_2020_Florida_Code_R405_Reports Street: Anyplace City, State, Zip: Tampa , FL , 34345 Owner: Energy Gauge Design Location: FL, Tampa	Builder Name: John Q. Hammer Permit Office: Permit Number: Jurisdiction: County: Hillsborough (Florida Climate Zone 2 )
---	---

<table style="width:100%; border-collapse: collapse;"> <tr> <td style="width:30%;">1. New construction or existing</td> <td style="width:30%;">New (From Plans)</td> <td style="width:40%;"></td> </tr> <tr> <td>2. Single family or multiple family</td> <td>Detached</td> <td></td> </tr> <tr> <td>3. Number of units, if multiple family</td> <td>1</td> <td></td> </tr> <tr> <td>4. Number of Bedrooms</td> <td>3</td> <td></td> </tr> <tr> <td>5. Is this a worst case?</td> <td>No</td> <td></td> </tr> <tr> <td>6. Conditioned floor area above grade (ft²)</td> <td>2000</td> <td></td> </tr> <tr> <td>Conditioned floor area below grade (ft²)</td> <td>0</td> <td></td> </tr> <tr> <td>7. Windows(320.0 sqft.)</td> <td>Description</td> <td>Area</td> </tr> <tr> <td>a. U-Factor:</td> <td>Dbl, U=0.40</td> <td>320.00 ft²</td> </tr> <tr> <td>SHGC:</td> <td>SHGC=0.25</td> <td></td> </tr> <tr> <td>b. U-Factor:</td> <td>N/A</td> <td>ft²</td> </tr> <tr> <td>SHGC:</td> <td></td> <td></td> </tr> <tr> <td>c. U-Factor:</td> <td>N/A</td> <td>ft²</td> </tr> <tr> <td>SHGC:</td> <td></td> <td></td> </tr> <tr> <td>Area Weighted Average Overhang Depth:</td> <td></td> <td>0.000 ft.</td> </tr> <tr> <td>Area Weighted Average SHGC:</td> <td></td> <td>0.250</td> </tr> <tr> <td>8. Skylights</td> <td></td> <td>Area</td> </tr> <tr> <td>c. U-Factor:(AVG)</td> <td>N/A</td> <td>ft²</td> </tr> <tr> <td>SHGC(AVG):</td> <td>N/A</td> <td></td> </tr> <tr> <td>9. Floor Types (2000.0 sqft.)</td> <td>Insulation</td> <td>Area</td> </tr> <tr> <td>a. Slab-On-Grade Edge Insulation</td> <td>R=0.0</td> <td>2000.00 ft²</td> </tr> <tr> <td>b. N/A</td> <td>R=</td> <td>ft²</td> </tr> <tr> <td>c. N/A</td> <td>R=</td> <td>ft²</td> </tr> </table>	1. New construction or existing	New (From Plans)		2. Single family or multiple family	Detached		3. Number of units, if multiple family	1		4. Number of Bedrooms	3		5. Is this a worst case?	No		6. Conditioned floor area above grade (ft²)	2000		Conditioned floor area below grade (ft²)	0		7. Windows(320.0 sqft.)	Description	Area	a. U-Factor:	Dbl, U=0.40	320.00 ft²	SHGC:	SHGC=0.25		b. U-Factor:	N/A	ft²	SHGC:			c. U-Factor:	N/A	ft²	SHGC:			Area Weighted Average Overhang Depth:		0.000 ft.	Area Weighted Average SHGC:		0.250	8. Skylights		Area	c. U-Factor:(AVG)	N/A	ft²	SHGC(AVG):	N/A		9. Floor Types (2000.0 sqft.)	Insulation	Area	a. Slab-On-Grade Edge Insulation	R=0.0	2000.00 ft²	b. N/A	R=	ft²	c. N/A	R=	ft²	<table style="width:100%; border-collapse: collapse;"> <tr> <td style="width:30%;">10. Wall Type(1557.4 sqft.)</td> <td style="width:30%;">Insulation</td> <td style="width:40%;">Area</td> </tr> <tr> <td>a. Concrete Block - Int Insul, Exterior</td> <td>R=6.0</td> <td>1404.40 ft²</td> </tr> <tr> <td>b. Frame - Wood, Adjacent</td> <td>R=13.0</td> <td>153.00 ft²</td> </tr> <tr> <td>c. N/A</td> <td>R=</td> <td>ft²</td> </tr> <tr> <td>d. N/A</td> <td>R=</td> <td>ft²</td> </tr> <tr> <td>11. Ceiling Types (2000.0 sqft.)</td> <td>Insulation</td> <td>Area</td> </tr> <tr> <td>a. Under Attic (Vented)</td> <td>R=38.0</td> <td>2000.00 ft²</td> </tr> <tr> <td>b. N/A</td> <td>R=</td> <td>ft²</td> </tr> <tr> <td>c. N/A</td> <td>R=</td> <td>ft²</td> </tr> <tr> <td>12. Ducts</td> <td></td> <td>R ft²</td> </tr> <tr> <td>a. Sup: Attic, Ret: Attic, AH: Main</td> <td></td> <td>8 400</td> </tr> <tr> <td>13. Cooling systems</td> <td>kBtu/hr</td> <td>Efficiency</td> </tr> <tr> <td>a. Central Unit</td> <td>19.5</td> <td>SEER:14.00</td> </tr> <tr> <td>14. Heating systems</td> <td>kBtu/hr</td> <td>Efficiency</td> </tr> <tr> <td>a. Electric Heat Pump</td> <td>19.5</td> <td>HSPF:8.20</td> </tr> <tr> <td>15. Hot water systems</td> <td></td> <td>Cap: 50 gallons</td> </tr> <tr> <td>a. Electric</td> <td></td> <td>EF: 0.945</td> </tr> <tr> <td>b. Conservation features</td> <td></td> <td>None</td> </tr> <tr> <td>16. Credits</td> <td></td> <td>None</td> </tr> </table>	10. Wall Type(1557.4 sqft.)	Insulation	Area	a. Concrete Block - Int Insul, Exterior	R=6.0	1404.40 ft²	b. Frame - Wood, Adjacent	R=13.0	153.00 ft²	c. N/A	R=	ft²	d. N/A	R=	ft²	11. Ceiling Types (2000.0 sqft.)	Insulation	Area	a. Under Attic (Vented)	R=38.0	2000.00 ft²	b. N/A	R=	ft²	c. N/A	R=	ft²	12. Ducts		R ft²	a. Sup: Attic, Ret: Attic, AH: Main		8 400	13. Cooling systems	kBtu/hr	Efficiency	a. Central Unit	19.5	SEER:14.00	14. Heating systems	kBtu/hr	Efficiency	a. Electric Heat Pump	19.5	HSPF:8.20	15. Hot water systems		Cap: 50 gallons	a. Electric		EF: 0.945	b. Conservation features		None	16. Credits		None
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Glass/Floor Area: 0.160	Total Proposed Modified Loads: 60.15	PASS
	Total Baseline Loads: 60.46	

<p>I hereby certify that the plans and specifications covered by this calculation are in compliance with the Florida Energy Code.</p> <p>PREPARED BY: _____ DATE: _____</p> <p>I hereby certify that this building, as designed, is in compliance with the Florida Energy Code.</p> <p>OWNER/AGENT: _____ DATE: _____</p>	<p>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.</p> <p style="text-align: right; font-size: 2em; font-weight: bold;">BUILDING OFFICIAL: _____ DATE: _____</p> <div style="text-align: right;">  </div>
---	---

- 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).
- Compliance requires a roof absorptance test and a roof emittance test in accordance with R405.7.2
- Compliance with a proposed duct leakage Qn requires a Duct Leakage Test Report confirming duct leakage to outdoors, tested in accordance with ANSI/RESNET/ICC 380, is not greater than 0.030 Qn for whole house.

## INPUT SUMMARY CHECKLIST REPORT

PROJECT													
Title:	Example_2020_Florida_Code	Bedrooms:	3	Address Type:	Street Address								
Building Type:	User	Conditioned Area:	2000	Lot #									
Owner Name:	Energy Gauge	Total Stories:	1	Block/Subdivision:									
# of Units:	1	Worst Case:	No	PlatBook:									
Builder Name:	John Q. Hammer	Rotate Angle:	0	Street:	Anyplace								
Permit Office:		Cross Ventilation:	No	County:	Hillsborough								
Jurisdiction:		Whole House Fan:	No	City, State, Zip:	Tampa , FL , 34345								
Family Type:	Detached												
New/Existing:	New (From Plans)												
Comment:	Florida Code Example												
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, Tampa	FL_TAMPA_INTERNATI	39	91	70	75	645.5	54	Medium				
BLOCKS													
Number	Name	Area	Volume										
1	Block1	2000	18000										
SPACES													
Number	Name	Area	Volume	Kitchen	Occupants	Bedrooms	Infil ID	Finished	Cooled	Heated			
1	Main	2000	18000	Yes	3	3	1	Yes	Yes	Yes			
FLOORS													
✓	#	Floor Type	Space	Perimeter	R-Value	Area		Tile	Wood	Carpet			
_____	1	Slab-On-Grade Edge Insulatio	Main	190 ft	0	2000 ft²	----	0.4	0	0.6			
ROOF													
✓	#	Type	Materials	Roof Area	Gable Area	Roof Color	Rad Barr	Solar Absor.	SA Tested	Emitt	Emitt Tested	Deck Insul.	Pitch (deg)
_____	1	Gable or shed	Composition shingles	2108 ft²	332 ft²	Medium	N	0.75	Yes	0.9	Yes	0	18.4
ATTIC													
✓	#	Type	Ventilation	Vent Ratio (1 in)	Area	RBS	IRCC						
_____	1	Full attic	Vented	300	2000 ft²	N	N						
CEILING													
✓	#	Ceiling Type	Space	R-Value	Ins Type	Area	Framing Frac	Truss Type					
_____	1	Under Attic (Vented)	Main	38	Blown	2000 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	W	Garage	Frame - Wood	Main	13	17	0	9	0	153.0 ft²	0	0.23	0.01	0	
2	W	Exterior	Concrete Block - Int Insul	Main	6	26.26		9		236.3 ft²		0	0.75	0	
3	S	Exterior	Concrete Block - Int Insul	Main	6	43.25		9		389.3 ft²		0	0.75	0	
4	E	Exterior	Concrete Block - Int Insul	Main	6	43.25		9		389.3 ft²		0	0.75	0	
5	N	Exterior	Concrete Block - Int Insul	Main	6	43.25		9		389.3 ft²		0	0.75	0	

  

DOORS											
✓ #	Ornt	Door Type	Space	Storms	U-Value	Width Ft	In	Height Ft	In	Area	
1	N	Insulated	Main	None	.4	5		8		40 ft²	

  

WINDOWS														
Orientation shown is the entered, Proposed orientation.														
✓ #	Ornt	Wall ID	Frame	Panes	NFRC	U-Factor	SHGC	Imp	Area	Overhang Depth	Separation	Int Shade	Screening	
1	W	2	Vinyl	Low-E Double	Yes	0.4	0.25	N	80.0 ft²	0 ft 0 in	0 ft 0 in	IECC 2012	None	
2	S	3	Vinyl	Low-E Double	Yes	0.4	0.25	N	80.0 ft²	0 ft 0 in	0 ft 0 in	IECC 2012	None	
3	E	4	Vinyl	Low-E Double	Yes	0.4	0.25	N	80.0 ft²	0 ft 0 in	0 ft 0 in	IECC 2012	None	
4	N	5	Vinyl	Low-E Double	Yes	0.4	0.25	N	80.0 ft²	0 ft 0 in	0 ft 0 in	IECC 2012	None	

  

GARAGE						
✓ #	Floor Area	Ceiling Area	Exposed Wall Perimeter	Avg. Wall Height	Exposed Wall Insulation	
1	382.8 ft²	382.8 ft²	64 ft	9 ft	11	

  

INFILTRATION								
#	Scope	Method	SLA	CFM 50	ELA	EqLA	ACH	ACH 50
1	Wholehouse	Proposed ACH(50)	.0004	2100	115.21	216.3	.14	7

  

HEATING SYSTEM									
✓ #	System Type	Subtype	Speed	Efficiency	Capacity	Block	Ducts		
1	Electric Heat Pump/	None	Singl	HSPF:8.2	19.5 kBtu/hr	1	sys#1		

  

COOLING SYSTEM									
✓ #	System Type	Subtype	Subtype	Efficiency	Capacity	Air Flow	SHR	Block	Ducts
1	Central Unit/	Split	Singl	SEER: 14	19.5 kBtu/hr	585 cfm	0.75	1	sys#1

## INPUT SUMMARY CHECKLIST REPORT

HOT WATER SYSTEM															
✓	#	System Type	SubType	Location	EF	Cap	Use	SetPnt	Conservation						
✓	1	Electric	None	Main	0.944999	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							ft²						
DUCTS															
✓	#	---- Supply ----			---- Return ----			Leakage Type	Air Handler	CFM 25 TOT	CFM25 OUT	QN	RLF	HVAC #	
✓	1	Attic	8	400 ft²	Attic	100 ft²	Prop. Leak Free	Main	--- cfm	60.0 cfm	0.03	0.50	1	1	
TEMPERATURES															
Programmable Thermostat: N					Ceiling Fans:										
Cooling	<input checked="" type="checkbox"/> Jan	<input checked="" type="checkbox"/> Feb	<input checked="" type="checkbox"/> Mar	<input checked="" type="checkbox"/> Apr	<input checked="" type="checkbox"/> May	<input checked="" type="checkbox"/> Jun	<input checked="" type="checkbox"/> Jul	<input checked="" type="checkbox"/> Aug	<input checked="" type="checkbox"/> Sep	<input checked="" type="checkbox"/> Oct	<input checked="" type="checkbox"/> Nov	<input checked="" 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 checked="" type="checkbox"/> May	<input checked="" type="checkbox"/> Jun	<input checked="" type="checkbox"/> Jul	<input checked="" type="checkbox"/> Aug	<input checked="" type="checkbox"/> Sep	<input checked="" type="checkbox"/> Oct	<input checked="" type="checkbox"/> Nov	<input checked="" type="checkbox"/> Dec			
Venting	<input checked="" type="checkbox"/> Jan	<input checked="" type="checkbox"/> Feb	<input checked="" type="checkbox"/> Mar	<input checked="" type="checkbox"/> Apr	<input checked="" type="checkbox"/> May	<input checked="" type="checkbox"/> Jun	<input checked="" type="checkbox"/> Jul	<input checked="" type="checkbox"/> Aug	<input checked="" type="checkbox"/> Sep	<input checked="" type="checkbox"/> Oct	<input checked="" type="checkbox"/> Nov	<input checked="" type="checkbox"/> Dec			
Thermostat Schedule: FloridaCode 2014															
Schedule Type		Hours													
		1	2	3	4	5	6	7	8	9	10	11	12		
Cooling (WD)	AM	75	75	75	75	75	75	75	75	75	75	75	75	75	
	PM	75	75	75	75	75	75	75	75	75	75	75	75	75	
Cooling (WEH)	AM	75	75	75	75	75	75	75	75	75	75	75	75	75	
	PM	75	75	75	75	75	75	75	75	75	75	75	75	75	
Heating (WD)	AM	72	72	72	72	72	72	72	72	72	72	72	72	72	
	PM	72	72	72	72	72	72	72	72	72	72	72	72	72	
Heating (WEH)	AM	72	72	72	72	72	72	72	72	72	72	72	72	72	
	PM	72	72	72	72	72	72	72	72	72	72	72	72	72	
MASS															
Mass Type				Area	Thickness	Furniture Fraction				Space					
Default(8 lbs/sq.ft.)				0 ft²	0 ft	0.3				Main					

# ENERGY PERFORMANCE LEVEL (EPL) DISPLAY CARD

ESTIMATED ENERGY PERFORMANCE INDEX\* = 99

The lower the EnergyPerformance Index, the more efficient the home.

Anyplace, Tampa, FL, 34345

1. New construction or existing	New (From Plans)	10. Wall Type and Insulation	Insulation	Area
2. Single family or multiple family	Detached	a. Concrete Block - Int Insul, Exterior	R=6.0	1404.40 ft²
3. Number of units, if multiple family	1	b. Frame - Wood, Adjacent	R=13.0	153.00 ft²
4. Number of Bedrooms	3	c. N/A	R=	ft²
5. Is this a worst case?	No	d. N/A	R=	ft²
6. Conditioned floor area (ft²)	2000	11. Ceiling Type and insulation level	Insulation	Area
7. Windows**	Description	a. Under Attic (Vented)	R=38.0	2000.00 ft²
a. U-Factor:	U=0.40	b. N/A	R=	ft²
SHGC:	SHGC=0.25	c. N/A	R=	ft²
b. U-Factor:	N/A	12. Ducts, location & insulation level	R	ft²
SHGC:		a. Sup: Attic, Ret: Attic, AH: Main	8	400
c. U-Factor:	N/A			
SHGC:		13. Cooling systems	kBtu/hr	Efficiency
d. U-Factor:	N/A	a. Central Unit	19.5	SEER:14.00
SHGC:				
Area Weighted Average Overhang Depth:	0.000 ft.	14. Heating systems	kBtu/hr	Efficiency
Area Weighted Average SHGC:	0.250	a. Electric Heat Pump	19.5	HSPF:8.20
8. Skylights	Description	Area		
a. U-Factor(AVG):	N/A	15. Hot water systems		
SHGC(AVG):	N/A	a. Electric	Cap: 50 gallons	
			EF: 0.94	
9. Floor Types	Insulation	Area		
a. Slab-On-Grade Edge Insulation	R=0.0	2000.00 ft²		
b. N/A	R=	ft²		
c. N/A	R=	ft²		
		b. Conservation features		
		None		
		Credits (Performance method)		None

I certify that this home has 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: \_\_\_\_\_



\*Note: This is not a Building Energy Rating. If your Index is below 70, your home may qualify for energy efficient mortgage (EEM) incentives if you obtain a Florida Energy Rating. For information about the Florida Building Code, Energy Conservation, contact the Florida Building Commission's support staff.

\*\*Label required by Section R303.1.3 of the Florida Building Code, Energy Conservation, if not DEFAULT.

# Florida Building Code, Energy Conservation, 7th Edition (2020)

## Mandatory Requirements for Residential Performance, Prescriptive and ERI Methods

ADDRESS: Anyplace  
Tampa , FL , 34345

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.

### SECTION R402 BUILDING THERMAL ENVELOPE

**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's air handler 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 by Section 405 of this code. Duct leakage testing is required for Section R405 compliance where credit is taken for leakage, and a duct air leakage  $Q_n$  to the outside of less than 0.080 (where  $Q_n$  = duct leakage to the outside in cfm per 100 square feet of conditioned floor area tested at 25 Pascals) is indicated in the compliance report for the proposed design.*

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).** If heated water circulation systems are installed, they 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 an air handler that is integral to tested and listed HVAC equipment is used to provide whole-house mechanical ventilation, the air handler 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.

- R403.7.1 Equipment sizing (Mandatory).** 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)
HRV or ERV	Any	1.2 cfm/watt	Any
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 R403.7, 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 Florida Building Code, Energy Conservation—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.

**R403.13 Dehumidifiers (Mandatory)** If installed, a dehumidifier shall conform to the following requirements:

1. The minimum rated efficiency of the dehumidifier shall be greater than 1.7 liters/ kWh if the total dehumidifier capacity for the house is less than 75 pints/day and greater than 2.38 liters/kWh if the total dehumidifier capacity for the house is greater than or equal to 75 pints/day.
2. The dehumidifier shall be controlled by a sensor that is installed in a location where it is exposed to mixed house air.
3. Any dehumidifier unit located in unconditioned space that treats air from conditioned space shall be insulated to a minimum of R-2.
4. Condensate disposal shall be in accordance with Section M1411.3.1 of the Florida Building Code, Residential.

**R403.13.1 Ducted dehumidifiers.** Ducted dehumidifiers shall, in addition to conforming to the requirements of Section R403.13, conform to the following requirements:

1. If a ducted dehumidifier is configured with return and supply ducts both connected into the supply side of the cooling system, a backdraft damper shall be installed in the supply air duct between the dehumidifier inlet and outlet duct.
2. If a ducted dehumidifier is configured with only its supply duct connected into the supply side of the central heating and cooling system, a backdraft damper shall be installed in the dehumidifier supply duct between the dehumidifier and central supply duct.
3. A ducted dehumidifier shall not be ducted to or from a central ducted cooling system on the return duct side upstream from the central cooling evaporator coil.
4. Ductwork associated with a dehumidifier located in unconditioned space shall be insulated to a minimum of R-6.

## SECTION R404

### ELECTRICAL POWER AND LIGHTING SYSTEMS

**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.

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

# 2020 - AIR BARRIER AND INSULATION INSPECTION COMPONENT CRITERIA

**TABLE 402.4.1.1**  
**AIR BARRIER AND INSULATION INSPECTION COMPONENT CRITERIA**<sup>a</sup>

Project Name: Example_2020_Florida_Code_R405_Reports Street: Anyplace City, State, Zip: Tampa , FL , 34345 Owner: Energy Gauge Design Location: FL, Tampa		Builder Name: John Q. Hammer 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 walls.		
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 finished surface.	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 or exterior walls	The air barrier shall be installed behind electrical or communication boxes or air-sealed boxes shall be installed.			
HVAC register boots	HVAC supply and return register boots that penetrate building thermal envelope shall be sealed to the sub-floor, wall covering or			
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.

# Envelope Leakage Test Report (Blower Door Test)

## Residential Prescriptive, Performance or ERI Method Compliance

### 2020 Florida Building Code, Energy Conservation, 7th Edition

Jurisdiction:	Permit #:
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**Job Information**

Builder: John Q. Hammer	Community:	Lot: 1A
Address: Anyplace		
City: Tampa	State: FL	Zip: 34845

**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 ACH50. ACH(50) specified on Form R405-2020-Energy Calc (Performance) or R406-2020 (ERI):

$\frac{\text{CFM}(50) \times 60 \div 18000}{\text{Building Volume}} = \text{ACH}(50)$ <p style="text-align: center;"><input type="checkbox"/> <b>PASS</b></p> <p><input type="checkbox"/> When ACH(50) is less than 3, Mechanical Ventilation installation must be verified by building department.</p>	<p><u>Method for calculating building volume:</u></p> <p><input type="radio"/> Retrieved from architectural plans</p> <p><input checked="" type="radio"/> Code software calculated</p> <p><input type="radio"/> Field measured and calculated</p>
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**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 the code 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: \_\_\_\_\_

# Duct Leakage Test Report

## Residential Prescriptive, Performance or ERI Method Compliance 2020 Florida Building Code, Energy Conservation, 7th Edition

Jurisdiction:	Permit #:
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### Job Information

Builder: John Q. Hammer	Community:	Lot: NA
Address: Anyplace		
City: Tampa	State: FL	Zip: 34345

### Duct Leakage Test Results

System 1	_____ cfm25
System 2	_____ cfm25
System 3	_____ cfm25
Sum of others	_____ cfm25
Total of all	_____ cfm25

**Prescriptive Method** cfm25 (Total)

To qualify as "substantially leak free" Qn Total must be less than or equal to 0.04 if air handler unit is installed. If air handler unit is not installed, Qn Total must be less than or equal to 0.03. This testing method meets the requirements in accordance with Section R403.3.3.

Is the air handler unit installed during testing?  YES (<sup>04</sup>/<sub>Qn</sub>)  NO (<sup>03</sup>/<sub>Qn</sub>)

\_\_\_\_\_ ÷ 2000 = \_\_\_\_\_ Qn

Total of all systems      Total Conditioned Square Footage

**Performance/ERI Method** cfm25 (Out or Total)

To qualify using this method, Qn must not be greater than the proposed duct leakage Qn specified on Form R405-2020 or R406-2020.

Leakage Type selected on Form R405-2020 (EnergyCalc) or R406-2020	Qn specified on Form R405-2020 (EnergyCalc) or R406-2020
Proposed Leak Free	0.03

**PASS**       **FAIL**

Duct tightness shall be verified by testing in accordance with ANSI/RESNET/ICC380 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.

### Testing Company

Company Name: \_\_\_\_\_ Phone: \_\_\_\_\_

I hereby verify that the above duct leakage testing results are in accordance with the Florida Building Code requirements with the selected compliance path as stated above, either the Prescriptive Method or Performance Method.

Signature of Tester: \_\_\_\_\_ Date of Test: \_\_\_\_\_

Printed Name of Tester: \_\_\_\_\_

License/Certification #: \_\_\_\_\_ Issuing Authority: \_\_\_\_\_

DEMONSTRATION PURPOSES ONLY