BROWARD COUNTY
BOARD OF RULES AND APPEALS

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To: Members of the 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 G. de Carion, Chief Energy Code Compliance Officer

Date: June 15, 2021 (1:30PM – 3:30PM)

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 – April 26, 2021

Chairman's Opening Remarks

Chief Energy Code Compliance Officer Opening Remarks

Regular Meeting

Item 1: Memo on "Min. Efficiency Req. for 'Low Heigh Air Handlers

Item 2: BORA Residential Energy Guidelines (Revision 06-15-2021)

General Discussion

Schedule Next Meeting

Adjournment

Reference Documents for Committee Use

Item 1a) Memo on "Min. Efficiency Req. for "Low Height Air Handlers (Pg. 4)
Item 1b) Code Summary Pertaining to C501.7 & R501.7 (Pg. 6)
Item 1c) First Company Letter (Pg. 9)
Item 1d) AHRI Certificate (Pg. 11)
Item 1e) Rudd Low Height Specs. (Pg. 13)
Item 1f) Formal Interpretation #8: Recessed Ceiling Air Handlers (Pg. 26)
Item 2a) BORA Residential Energy Guidelines (Pg. 29)
Item 2b) Residential Compliance Forms R405-2020 (Pg. 45)

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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DRAFT

MEETING OF THE ENERGY CONSERVATION COMMITTEE

Minutes
April 26, 2021

Call to Order:

Chair David Rice, P.E. called a published meeting of the Broward County Board of Rules and Appeals Energy Conservation Committee to order at 1:35PM.

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

Present:

Mike Charnin	Eric Jenison	John Travers
Samantha Danchuck	Art Kamm, P.E.	Dennis Ulmer
Tim Fallon	Brian Lomel, P.E.	Bob Volin
Wyatt T. Haygood	David Rice, P.E.	

Staff: Timothy de Carion, Chief Energy Code Compliance Officer

Chair Rice reminded the committee members that the code cannot be changed. He asked if there is there is ever anything that the committee members come across in the guidelines drafts that alter the code, please notify him or Mr. Timothy de Carion, Broward County Board of Rules and Appeals.

Item 1: Legal Opinion on Residential Fenestration Product Rating Submittal Form

Mr. De Carion Shared the Legal Opinion from Charles M. Kramer, Board Attorney, About The "Residential Fenestration Product Rating Submittal Form."

Mr. Kramer's opinion states: "My review of applicable authority, including Special Act 71-575, Sections 9.02(1) and (3) of the Broward County Charter, and the Residential Energy Code Determines That the Broward County BORA has the authority to adopt the attached code form as a recommended part of the permit application procession. applicable law does not give BORA the authority to mandate use of the proposed form county wide. The Residential Energy Code allows for discretion on the part of the local code official."

Mr. De Carion added that by including the "Residential Fenestration Product Rating Submittal Form" in the Residential Energy Guidelines, it can be used as a tool by the code officials to aid in compliance.

NO MOTION.

Item 2: Criteria for Code Items to be Included in Guidelines

Chair Rice shared that in the energy codes, there is no clear designation for which positions are responsible for the required tasks. By highlighting the sections of the code that are lacking direction, he believes that it will make it easier for code officials to see the areas that need to be addressed.

NO MOTION.

Item 3: BORA Residential Energy Guidelines (Revision 04/26/2021)

Mr. de Carion informed the committee members that he added an appendix and an addendum to the most recent draft of the BORA Residential Energy Guidelines.

He went on to share his screen so that everyone could follow along as he presented the BORA Residential Energy Guidelines document in its current state. He began sharing the revisions that were made to the Envelope Leakage Test Report (Blower Door Test).

Mr. de Carion said that in his experience, he saw errors resulting from how the Blower Door Test is currently being used.

Chair Rice asked which code officials review Blower Door Reports. Mr. de Carion said that he found that it varies by municipality. Some cities give the Mechanical staff the responsibility, while others designate it to the Structural staff. Mr. de Carion suggested that the Blower Door Reports always be reviewed by the mechanical staff in addition to who is the designated reviewer.

Mr. Michael Charnin, City of Plantation, agreed that the mechanical code officials should review the blower door test. He said that majority of the aspects of the blower door test review are included in what mechanical code officials work with on a regular basis. Mr. Brian Lomel, P.E., TLC Engineering, agreed with Mr. Charnin.

Mr. Art Kamm, P.E., Kamm Consulting, said that the review falls into mechanical code more than the structural code.

Mr. Bob Volin, Air Design Concepts, suggested that the mechanical code officials because there is a propensity for ventilation issues to come to light after preforming a blower door test.

Chair Rice said that even though the committee agrees that the Blower Door Reports should be reviewed by the mechanical code officials, he believes that the building representatives from the Board of Rules and Appeals staff should provide their input too.

Mr. de Carion shared the revisions that were made to the BORA Residential Energy Guidelines – Plumbing Checklist. He added the Energy Compliance Report guidelines to the plan review section of the checklist.

Mr. de Carion shared the revisions that were made to the BORA Residential Energy Guidelines – Electrical Checklist. He shared that when an energy credit is taken, the ceiling fans need to be shown on the electrical drawings. Mr. de Carion included the Fan Sizing Table (Table R405.7.6) in the guidelines' addendum.

NO MOTION.

Mr. de Carion shared the upcoming continuing education courses being offered through the Broward County Board of Rules and Appeals with the committee members.

Chair Rice said that he intends to schedule the next Energy Conservation Committee meeting in four weeks. He asked the committee members to review the checklists and send their comments to Mr. de Carion. Chair Rice also mentioned that he would like the Broward BORA Chief Code Compliance Officers to review the final draft of the document before it is presented to the Board. He shared that he believes that the more input in that the document receives will result in a stronger document.

Chair Rice reminded the committee members about the Florida Sunshine Law. Since 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, all comments and questions must be submitted to Mr. de Carion.

Mr. Ulmer reminded the committee that the March meeting minutes were not approved at the beginning of the meeting. Chair Rice asked if anyone would like to make a motion.

A MOTION WAS MADE BY MR. LOMEL AND SECONDED BY MR. TRAVERS TO APPROVE THE MARCH 17, 2021 ENERGY CONSERVATION COMMITTEE MEETING MINUTES. THE MOTION PASSED BY UNANIMOUS VOTE.

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

Adjournment

Having no further business to go before the Committee, the meeting adjourned at 2:46PM.

Item 1a:
Memo to Mechanical Chiefs (Dated 06/15/2021)

BROWARD COUNTY
BOARD OF RULES AND APPEALS

ONE NORTH UNIVERSITY DRIVE
SUITE 3500-B
PLANTATION, FLORIDA 33324

PHONE: 954-765-4500
FAX: 954-765-4504
www.broward.org/codeappeal

Date: 6-15-2021

MEMORANDUM

From: Timothy G de Carion

To: All Broward County Mechanical Chiefs

Subject: Minimum Efficiency Req. for "Low Height Air Handlers"

It has come to my attention that some jurisdictions are accepting a manufacturers letter claiming an exception to FBC Energy Conservation Code efficiency requirements due to space constraints.

C501.7 and R501.7
"New products shall meet the minimum efficiencies allowed by this code for the following systems and components:"
"Heating, ventilating or air conditioning systems"
Exception #4
"replacement equipment that would require extensive revisions to other systems, equipment or elements of a building where such a replacement is a like for like replacement" …

Please note:
To date, the AHRI directory has many systems using the "Low Height Air Handler' produced by multiple manufacturers which meet or exceed the minimum 14 seer requirements and have the same dimensions as the original unit being replaced.
Please refer to the AHRI directory before approving these permits using this exception.

The Energy Conservation Committee has affirmed that a 13-Seer system combination should not be accepted if a 14-Seer system of like size is readily available.

If you have any questions, please feel free to call me at 954-765-4500 x9853 or email me @tdecarion@broward.org

Respectfully, Timothy G. de Carion
Chief Energy Code Compliance Officer

Item 1b:
Code Summary pertaining to C501.7 & R501.7 **(**Dated 06/15/2021)

Code Summary

Question: Can a manufacturer claim they do not need to comply with the federal efficiency standards on a replacement system due to space constraints when other system options exist that meet the space constraint and are compliant?

Applicable Codes: **C501.7 Building Systems and Components**

Discussion: In the past, First Company was the only manufacturer which produced a replacement "Low height air Handler" which would fit into the provided space of the existing unit. First Company would provide a letter, matching this air handler with a specific condenser without an AHRI efficiency certificate. An exception in the code allowed the manufacture to use exception #2 & #4 in C501.7 to bypass the current efficiency requirements and verify a matched system without complying with the federal efficiency standards. Recently, other manufacturers have started producing a system match for "Low height air handlers" which meets the current minimum efficiencies allowed by the code when paired with a high efficiency condenser and are tested and certified by AHRI.

Interpretation: Some manufactures have gone to great lengths re-engineering their systems to comply with the current efficiency requirements of 14 SEER by adding ECM motors, expansion valves and time delays while maintaining the same physical size. They have also incurred expenses in testing and certification of these systems. These systems should be the first option for the contractor to select to meet the current code before exceptions are taken in the code. Exception 4 to C501.7 is no longer applicable, the availability of code compliant "like for like" equipment, makes "extensive revisions to other system, equipment or elements of a building" not necessary.

Conclusion: The attached manufacturers letter should not be accepted.

2020 Florida Building Code, 7th Edition
Energy Conservation

Chapter 5

C501.7 Building systems and components

Thermal efficiency standards are set for the following building systems and components where new products are installed or replaced in existing buildings, and for which a permit must be obtained. New product shall meet the minimum efficiencies allowed by this code for the following systems and components:

Heating, ventilating or air-conditioning systems;
Service water or pool heating systems;
Lighting systems; and
Replacement fenestration.

Exceptions:

1. Where part of a functional unit is repaired or replaced. For example, replacement of an entire HVAC system is not required because a new compressor or other part does not meet code when installed with an older system.
2. If the unit being replaced itself is a functional unit, such as a condenser, it does not constitute a repair. Outdoor and indoor units that are not designed to be operated together must meet the U.S. Department of Energy certification requirements contained in Section R303.1.2. Matched systems are required; this match may be verified by any one of the following means:
    a. AHRI data
    b. Accredited laboratory
    c. Manufacturer's letter
    d. Letter from registered P.E. State of Florida
3. Where existing components are utilized with a replacement system, such as air distribution system ducts or electrical wiring for lights, such components or controls need not meet code if meeting code would require that component's replacement.
4. Replacement equipment that would require extensive revisions to other system, equipment or elements of a building where such replacement is a like-for-like replacement, such as through-the-wall condensing units and PTACs, chillers and cooling towers in confined spaces.

Item 1c:
First Company Letter **(**Dated 07/1/2020)

July 1, 2020

Mr. Randy Black
Technical Sales Consultants, Inc.

Dear Randy,

This letter is in reference to Section C501.7 of the 2020 Florida Building Code and serves to confirm that the following products are compatible for replacement of like-for-like spaced constrained applications. First Co.'s limited warranty would apply when installed per manufacturer specifications.

Condenser Manufacturer	Condenser Model Number	First Co. Air Handler Model	Minimum SEER
Rheem / Ruud	RA1418***	19HX, 24HX	14.0
	RA1424***	24HX	13.0
	RA1430***	30HX	13.0
	RA1436***	36HX	13.0

- The above information is valid through March 1, 2024.

James Nation
Vice President
First Co.
Dallas, Texas

Item 1d:
AHRI Certificate (Dated 06/9/2021)

Certificate of Product Ratings

AHRI Certified Reference Number : 204381805 Date : 06-09-2021 Model Status : Active

AHRI Type : RCU-A-CB (Split System: Air-Cooled Condensing Unit, Coil with Blower)

Outdoor Unit Brand Name : RUUD

Outdoor Unit Model Number (Condenser or Single Package) : RA1424BJ1

Indoor Unit Model Number (Evaporator and/or Air Handler) : RHXP2410STAN

Region : Southeast and North (AL, AR, DC, DE, FL, GA, HI, KY, LA, MD, MS, NC, OK, SC, TN, TX, VA, AK, CO, CT, ID, IL, IA, IN, KS, MA, ME, MI, MN, MO, MT, ND, NE, NH, NJ, NY, OH, OR, PA, RI, SD, UT, VT, WA, WV, WI, WY, U.S. Territories)

Region Note : Central air conditioners manufactured prior to January 1, 2015 are eligible to be installed in all regions until June 30, 2016. Beginning July 1, 2016 central air conditioners can only be installed in region(s) for which they meet the regional efficiency requirement.

The manufacturer of this RUUD product is responsible for the rating of this system combination.

Rated as follows in accordance with the latest edition of AHRI 210/240 with Addendum 1, Performance Rating of Unitary Air-Conditioning & Air-Source Heat Pump Equipment and subject to rating accuracy by AHRI-sponsored, independent, third party testing:

Cooling Capacity (A2) - Single or High Stage (95F), btuh : 22800

SEER : 14.00

EER (A2) - Single or High Stage (95F) : 11.00

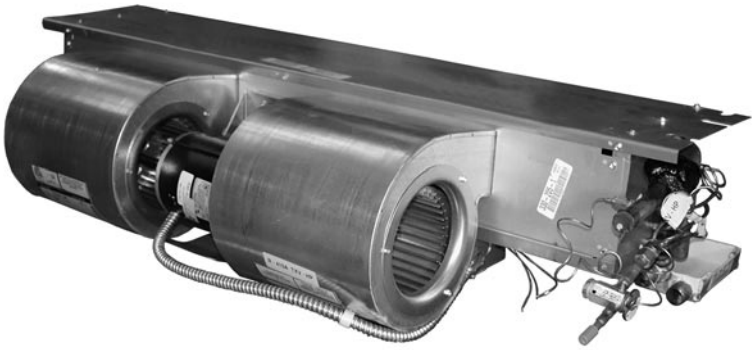
†"Active" Model Status are those that an AHRI Certification Program Participant is currently producing AND selling or offering for sale; OR new models that are being marketed but are not yet being produced."Production Stopped" Model Status are those that an AHRI Certification Program Participant is no longer producing BUT is still selling or offering for sale.
Ratings that are accompanied by WAS indicate an involuntary re-rate. The new published rating is shown along with the previous (i.e. WAS) rating.

AHRI AIR-CONDITIONING, HEATING, & REFRIGERATION INSTITUTE
we make life better™

CERTIFICATE NO.: 13267742219158427 1

Item 1e:
Rudd Low Height Specs.

Ruud Low Height Air Handler



RHXT- Series

ECM Motor
Efficiencies up to 16 SEER

RHXP- Series

PSC Motor
Efficiencies up to 14.5 SEER

Standard Features

- High efficiency ECM motor
- Drain pan has 3/4" NPT primary and secondary (overflow) fittings
- 240V motor, 24V control
- Factory installed electric heat (up to 10 kW) (except 0 kW models)
- Highly efficient copper tube/aluminum fin cooling coil with factory installed R-410A TXV (non-bleed type)
- Insulated and coated galvanized steel drain pan, sloped for positive drainage
- Effective January 2016, Cabinet air leakage is no more than 2% when tested in accordance with ASHRAE 193.

Optional Features

- Attractive off-white return air/access panel with captive screws. They can be used with either the non-enclosed RXHT or the RXHT with a field or factory installed enclosure.
- IAQ filter panels (see page 9)
- Field installed enclosure. All enclosures are fully insulated and include cutouts for optional ducted return air. Ducted return air option requires remote filter-grille.
- Heat pump kit - required for heat pump match ups having electric heat (#942-1).
- Condensate overflow switch (# SS3) (field installed)
- Enclosure “Cap Kit” – for ceiling installation

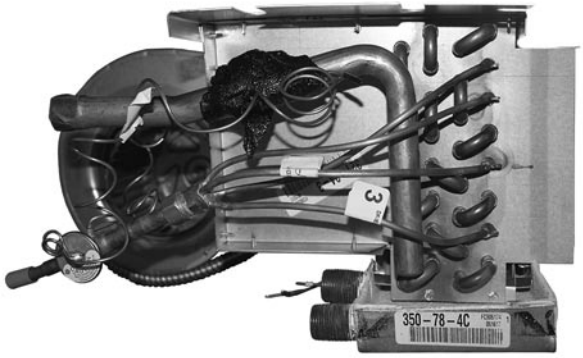
TABLE OF CONTENTS

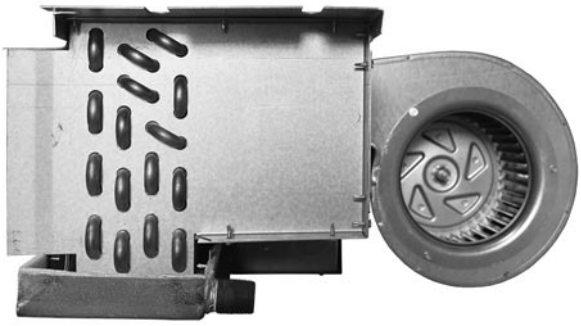
Engineering Features

These recessed ceiling fan coils are designed for use with today's higher efficiency split-system condensing units and heat pumps. High efficiency ECM type motors are standard in all RHXT series fan coils.

The base RHXT fan coil is an open blower type (non-enclosed) fan coil. It is also available with either a field or factory installed enclosure, with both options including your choice of either a louvered or solid ceiling panel. For RHXT fan coils factory installed within an enclosure, add “C” before the kW in the model number. For instance, ordering model RHXT3610STANJAC08, will include an RHXT3610STANJAU08 fan coil factory installed in an enclosure and your choice of either a solid or louvered panel (see “Enclosures with Ceiling Panels” on page 10). A “cap kit” is also available when the RHXT is installed above a ceiling, rather than recessed.

Compatible outdoor units: The customer is ultimately responsible for confirming which fan coil models are com¬patible with selected outdoor units. To determine up-to-date, certified indoor/outdoor matches, please visit the AHRI web site (www.ahridirectory.org).





Model Number Identification

R	H	X	P	24	10	S	T	A	N	A	A	U	00
Brand	**Product**	**Application**	**Motor**	**Capacity**	**Height**	**Coil Efficiency**	**Metering Device**	**Major Series**	**Controls**	**Voltage**	**Minor Series**	**Cabinet Type**	**Factory Heat Cap**
Ruud	H = Air Handler	X = Low Height	P = PSC T = Constant Torque	18 = 18,000 BTU/H 24 = 24,000 BTU/H 30 = 30,000 BTU/H 36 = 36,000 BTU/H	10 = 10″	S = Standard M = Mid H = High	T = TEV E = EEV P = Piston	Feature Set Change Performance Change	C = Communicating N = Non-Communicating	J = 208-240/60/1 T = 200-240/50/1	A = Non Performance Change	U = Uncased C = Cased	00 = No Factory Heat 03 = 3 kW 05 = 5 kW 08 = 8 kW 10 = 10 kW

[ ] Designates Metric Conversions

Available Models							
RHXP							
RHXP2010SPANJAU03	RHXP3610SPANJAU00	RHXP2510STANJAU00	RHXP3010STANJAU05	RHXP3610STANJAU10	RHXP2410STANJAC10	RHXP2810STANJAC06	RHXP3210STANJAC06
RHXP2410SPANJAU00	RHXP3610SPANJAU05	RHXP2510STANJAU03	RHXP3010STANJAU06	RHXP3710STANJAU00	RHXP2510STANJAC00	RHXP2810STANJAC08	RHXP3210STANJAC08
RHXP2410SPANJAU05	RHXP3610SPANJAU06	RHXP2510STANJAU05	RHXP3010STANJAU08	RHXP3710STANJAU05	RHXP2510STANJAC03	RHXP2810STANJAC10	RHXP3210STANJAC10
RHXP2410SPANJAU06	RHXP3610SPANJAU08	RHXP2510STANJAU06	RHXP3010STANJAU10	RHXP3710STANJAU06	RHXP2510STANJAC05	RHXP3010STANJAC00	RHXP3610STANJAC00
RHXP2410SPANJAU08	RHXP3610SPANJAU10	RHXP2510STANJAU08	RHXP3110STANJAU00	RHXP3710STANJAU08	RHXP2510STANJAC06	RHXP3010STANJAC03	RHXP3610STANJAC03
RHXP2410SPANJAU10	RHXP3710SPANJAU00	RHXP2510STANJAU10	RHXP3110STANJAU03	RHXP3710STANJAU10	RHXP2510STANJAC08	RHXP3010STANJAC05	RHXP3610STANJAC05
RHXP2510SPANJAU00	RHXP3710SPANJAU10	RHXP2610STANJAU00	RHXP3110STANJAU05	RHXP2010STANJAC03	RHXP2510STANJAC10	RHXP3010STANJAC06	RHXP3610STANJAC06
RHXP2510SPANJAU05	RHXP2010STANJAU00	RHXP2610STANJAU03	RHXP3110STANJAU06	RHXP2010STANJAC05	RHXP2610STANJAC00	RHXP3010STANJAC08	RHXP3610STANJAC08
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RHXP2810SPANJAU08	RHXP2010STANJAU08	RHXP2810STANJAU05	RHXP3210STANJAU06	RHXP2410STANJAC00	RHXP2610STANJAC08	RHXP3110STANJAC05	RHXP3710STANJAC05
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RHXT							
RHXT1910STANJAU00	RHXT2010STANJAU10	RHXT2610STANJAU06	RHXT3110STANJAU06	RHXT1910STANJAC03	RHXT2510STANJAC00	RHXT2610STANJAC08	RHXT3110STANJAC05
RHXT1910STANJAU03	RHXT2510STANJAU00	RHXT2610STANJAU08	RHXT3110STANJAU08	RHXT1910STANJAC05	RHXT2510STANJAC03	RHXT2610STANJAC10	RHXT3110STANJAC06
RHXT1910STANJAU05	RHXT2510STANJAU03	RHXT2610STANJAU10	RHXT3110STANJAU10	RHXT1910STANJAC06	RHXT2510STANJAC05	RHXT2810STANJAC00	RHXT3110STANJAC08
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RHXT1910STANJAU08	RHXT2510STANJAU06	RHXT2810STANJAU05	RHXT3710STANJAU03	RHXT2010STANJAC00	RHXT2510STANJAC08	RHXT2810STANJAC05	RHXT3710STANJAC00
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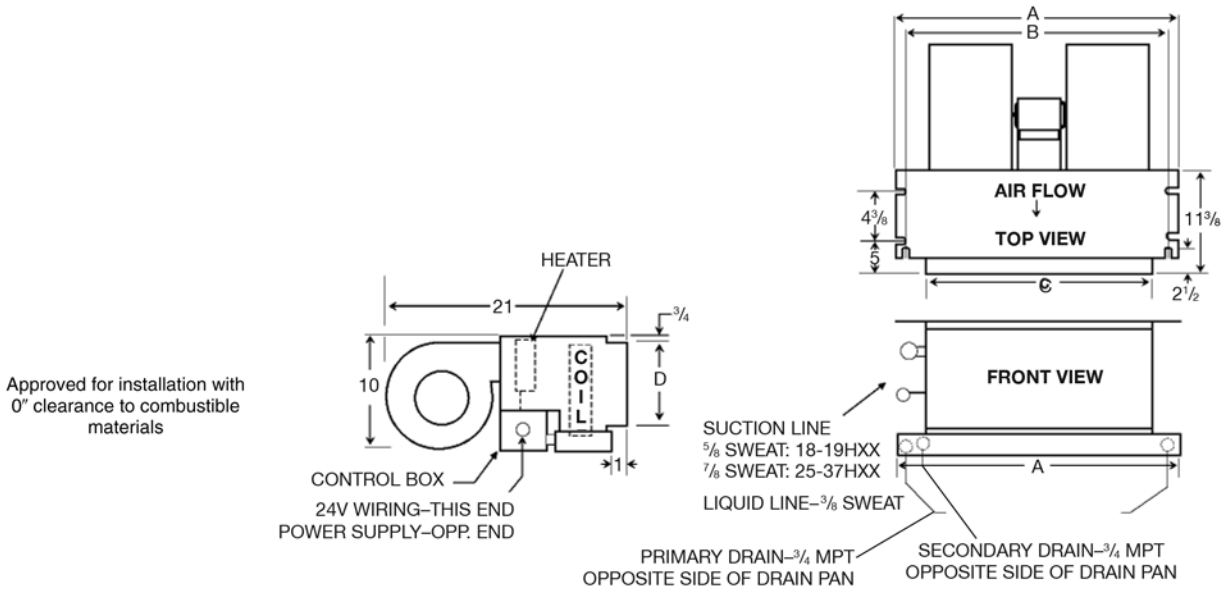
RHXT2010STANJAU08	RHXT2610STANJAU05	RHXT3110STANJAU05	RHXT1910STANJAC00	RHXT2010STANJAC10	RHXT2610STANJAC06	RHXT3110STANJAC03	RHXT3710STANJAC10

Unit Dimensions



Physical Dimensions

Model	A	B	C	D
12, 19, 24RHXT	37 1/4	34 11/16	30	6 1/2
20, 25RHXT	43 1/4	40 11/16	36	6 1/2
26, 31RHXT	49 1/4	46 11/16	42	6 1/2
28, 32, 37RHXT	56 1/4	53 11/16	49	6 1/2

[ ] Designates Metric Conversions

Performance Data

Unit Model RHXT-	Nominal CFM	Nominal Cool BTUH	Heat (1)		Total Amps		Minimum Circuit Ampacity		Maximum Fuse	
			kW	BTUH	208V	240V	208V	240V	208V	240V
12RHXT -0	400	12000	—	—	1.5	1.5	—	—	—	—
12RHXT -3			3	10,200	12.4	14.0	16	18	20	20
12RHXT -5			5	17,000	19.6	22.4	25	28	25	30
19RHXT -0 20RHXT -0 24RHXT -0	600	18000	—	—	4.3	4.3	—	—	—	—
19RHXT -3 20RHXT -3 24RHXT -3			3	10,200	15.2	16.8	19	21	20	25
19RHXT -5 20RHXT -5 24RHXT -5			5	17,000	22.4	25.2	28	32	30	35
19RHXT -6 20RHXT -6 24RHXT -6			6	20,500	26.0	29.3	33	37	35	40
19RHXT -8 20RHXT -8 24RHXT -8			8	27,300	33.2	37.7	42	47	50	50
19RHXT -10 20RHXT -10 24RHXT -10			10	34,100	40.4	46.0	51	58	60	60
25RHXT -0 26RHXT -0 28RHXT -0	800	24000	—	—	4.3	4.3	—	—	—	—
25RHXT -3 26RHXT -3 28RHXT -3			3	10,200	15.2	16.8	19	21	20	25
25RHXT -5 26RHXT -5 28RHXT -5			5	17,000	22.4	25.2	28	32	30	35
25RHXT -6 26RHXT -6 28RHXT -6			6	20,500	26.0	29.3	33	37	35	40
25RHXT -8 26RHXT -8 28RHXT -8			8	27,300	38.2	37.7	42	47	50	50
25RHXT -10 26RHXT -10 28RHXT -10			10	34,100	40.4	46.0	51	58	60	60
31RHXT -0 32RHXT -0	1000	30000	—	—	4.3	4.3	—	—	—	—
31RHXT -3 32RHXT -3			3	10,200	15.2	16.8	19	21	20	25
31RHXT -5 32RHXT -5			5	17,000	22.4	25.2	28	32	30	35
31RHXT -6 32RHXT -6			6	20,500	26.0	29.3	33	37	35	40
31RHXT -8 32RHXT -8			8	27,300	33.2	37.7	42	47	50	50
31RHXT -10 32RHXT -10			10	34,100	40.4	46.0	51	58	60	60
37RHXT -0	1200	36000	—	—	4.3	4.3	—	—	—	—
37RHXT -3			3	10,200	15.2	16.8	19	21	20	25
37RHXT -5			5	17,000	22.4	25.2	28	32	30	35
37RHXT -6			6	20,500	26.0	29.3	33	37	35	40
37RHXT -8			8	27,300	33.2	37.7	42	47	50	50
37RHXT -10			10	34,100	40.4	46.0	51	58	60	60

Performance Data

Unit Model RHXP-		Nominal CFM	Nominal Cool BTUH	Heat		Total Amps	Minimum Circuit Ampacity		(2) Maximum Fuse	
				kW	BTUH	208V	208V	240V	208V	240V
18RHXP	-5	600	18,000	5	17,000	22.8	25	30	25	30
	-6			6	20,500	27.0	30	35	30	35
19RHXP & 20RHXP	-51	600	18,000	—	—	1.0	2	2	15	15
	-3			3	10,200	13.5	15	18	15	20
	-5			5	17,000	21.8	24	30	25	30
	-6			6	20,500	26.0	29	35	30	35
	-8			8	27,300	34.3	38	47	40	50
24, 25RXHP & 26, 28RXHP	-59	800	24,000	—	—	2.0	3	3	15	15
	-3			3	10,200	14.5	16	20	20	20
	-5			5	17,000	22.8	25	30	25	30
	-6			6	20,500	27.0	29	35	30	35
	-8			8	27,300	35.3	39	47	40	50
	-10			10	34,100	43.6	48	55	50	60
30,31RHXP & 32RHXP	-63	1000	30,000	—	—	2.0	3	3	15	15
	-3			3	10,200	14.5	16	20	20	20
	-5			5	17,000	22.8	25	30	25	30
	-6			6	20,500	27.0	29	35	30	35
	-8			8	27,300	35.3	39	47	40	50
	-10			10	34,100	43.6	48	55	50	60
36RHXP & 37 RHXP	-70	1200	36,000	—	—	2.8	4	4	15	15
	-3			3	10,200	15.3	18	20	20	20
	-5			5	17,000	23.6	27	30	30	30
	-6			6	20,500	27.8	31	35	35	35
	-8			8	27,300	36.1	40	46	40	50
	-10			10	34,100	44.5	49	56	50	60

Blower Data

Unit Model RHXT-	Motor HP (240V)	Speed Tap	Motor BHP	Nominal Amps	CFM vs. External Static Pressure								
					0.00	0.05	0.10	0.15	0.20	0.25	0.30	0.35	0.40
12RHXT	1/7	Optional High	0.07	0.70	670	645	620	595	570	545	525	500	475
		Std. High	0.05	0.50	590	560	525	495	465	440	415	—	—
		Std. Low	0.04	0.30	380	340	300	260	220	180	140	—	—
19RHXT	1/2	Optional High	0.16	1.20	800	765	730	695	660	620	580	535	490
		Std. High	0.10	0.08	660	630	600	575	550	525	500	—	—
		Std. Low	0.08	0.07	590	555	520	495	470	445	420	—	—
20RHXT	1/2	Optional High	0.16	1.20	800	765	730	695	660	620	580	535	490
		Std. High	0.10	0.80	650	625	600	575	550	525	500	—	—
		Std. Low	0.08	0.70	590	560	530	505	480	455	430	—	—
24RHXT	1/2	Optional High	0.31	2.10	1000	985	965	950	935	915	900	885	865
		Std. High	0.23	1.50	860	840	820	800	780	765	745	—	—
		Std. Low	0.17	1.00	715	685	660	640	615	595	580	—	—
25RHXT 28RHXT	1/2	Optional High	0.30	2.10	970	950	930	910	890	870	850	825	800
		Std. High	0.20	1.50	810	790	770	745	720	705	690	—	—
		Std. Low	0.16	1.00	720	690	660	645	630	615	600	—	—
26RHXT	1/2	Optional High	0.30	2.10	1010	980	950	925	900	880	860	840	820
		Std. High	0.20	1.50	840	810	780	760	740	720	700	—	—
		Std. Low	0.16	1.00	750	715	680	655	630	615	600	—	—
31RHXT	1/2	Optional High	0.43	3.30	1230	1195	1160	1140	1120	1090	1060	995	930
		Std. High	0.32	2.20	1060	1015	970	945	920	875	830	—	—
		Std. Low	0.24	1.50	920	885	850	810	770	735	700	—	—
32RHXT	1/2	Optional High	0.43	3.30	1280	1245	1210	1180	1150	1115	1080	1025	970
		Std. High	0.32	2.20	1090	1050	1010	985	960	930	900	—	—
		Std. Low	0.24	1.50	950	920	890	855	820	790	760	—	—
37RHXT	1/2	Optional High	0.51	4.00	1430	1400	1370	1355	1320	1295	1270	1220	1170
		Std. High	0.43	3.30	1260	1225	1190	1160	1130	1115	1100	—	—
		Std. Low	0.32	2.20	1110	1080	1050	1025	1000	970	940	—	—

Unit Model RXHP-	Motor HP (240V)	CFM vs. External Static Pressure						
		0.00	0.05	0.10	0.15	0.20	0.25	0.30
18RHXT	1/8	810	775	740	705	670	640	610
19RHXT	1/8	820	785	750	715	680	650	620
20RHXT	1/8	850	815	780	745	710	670	630
24, 28 RHXT	1/4	910	875	840	805	770	730	690
25RHXT	1/4	930	895	860	825	790	750	710
26RHXT	1/4	960	925	890	850	810	770	730
24RHXT	1/4	—	—	—	920	890	860	830
30, 31RHXT	1/4	1110	1075	1040	990	940	900	860
32RHXT	1/4	1170	1140	1110	1075	1040	1000	960
30RHXT	1/3	—	—	—	1110	1070	1030	990
36RHXT	1/3	1410	1370	1330	1290	1250	1210	1170
37RHXT	1/3	1460	1420	1380	1340	1300	1250	1200

Ceiling Access Panels (For RXHT's installed without enclosure)

For Model	Panel No. (Std.)	Panel No. (IAQ)	Description	Ceiling Panel Opening		Panel Frame Dimensions (Outside)	
12, 19, 24RHXT	965	965-M8(*)	Louvered	24 1/2	40	27 1/2	43
	965-1	NA	Non-Louvered	24 1/2	40	27 1/2	43
20, 25RHXT	966	966-M8(*)	Louvered	24 1/2	46	27 1/2	49
	966-1	NA	Non-Louvered	24 1/2	46	27 1/2	49
26, 31RHXT	967	967-M8(*)	Louvered	24 1/2	52 1/2	27 1/2	55 1/2
	967-1	NA	Non-Louvered	24 1/2	52 1/2	27 1/2	55 1/2
28, 32, 37RHXT	967-6	967-6-M8(*)	Louvered	24 1/2	60	27 1/2	63
	967-7	NA	Non-Louvered	24 1/2	60	27 1/2	63

NOTE: (*) Add -2 to end of panel number for panel that accepts 2″ filter.

STANDARD PANELS

 # 965-1, 966-1, 967-1, 967-7

 # 965, 966, 967, 967-6
(Louvers may differ from picture)
Louvered panels accept 20x20x1" filter
(field supplied)

IAQ PANELS

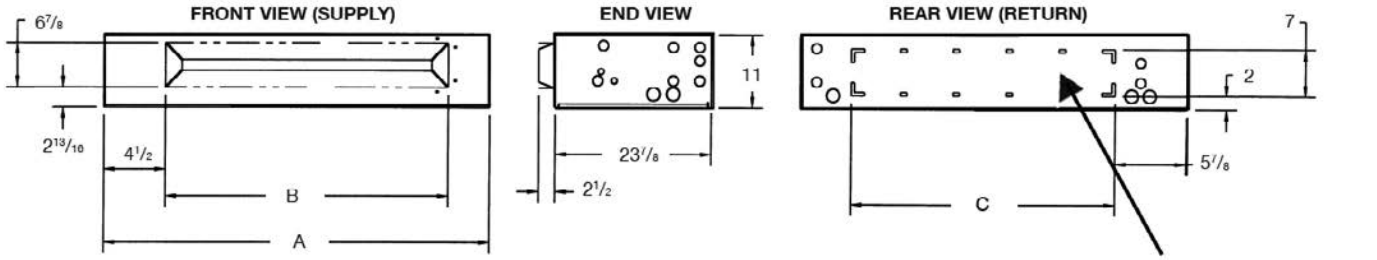
 # 965-M8 (accepts 1-20x30x1 filter)
 # 966-M8, 967-M8
(accepts 2-20x30x1 filter)
 # 967-6-M8, (accepts 2-20x25x1 filter)
(GlassFloss® Industries Series HV filter
or equivalent recommended)

Enclosures with Ceiling Panels

(Enclosures and panels are standard with ALL "-C"models or can be ordered separately for "RXHT" models

For Model	Enclosure No.	Enclosure Dimensions			Panel No. (Std.)	Panel No. (IAQ)	Description	Ceiling Panel Opening		Panel Frame Dimensions (Outside)	
		H	W	D				W	L	W	L
12, 19, 24RHXT	9EHX01	11	39 3/4	23 7/8	965	965-M8(*)	Louvered	24 1/2	40	27 1/2	43
					965-1	NA	Non-Louvered	24 1/2	40	27 1/2	43
20, 25RHXT	9EHX02	11	45 3/4	23 7/8	966	966-M8(*)	Louvered	24 1/2	46	27 1/2	49
					966-1	NA	Non-Louvered	24 1/2	46	27 1/2	49
26, 31RHXT	9EHX03	11	51 3/4	23 7/8	967	967-M8(*)	Louvered	24 1/2	52 1/2	27 1/2	55 1/2
					967-1	NA	Non-Louvered	24 1/2	52 1/2	27 1/2	55 1/2
28, 32, 37RHXT	9EHX04	11	58 3/4	23 7/8	967-6	967-6-M8(*)	Louvered	24 1/2	60	27 1/2	63
					967-7	NA	Non-Louvered	24 1/2	60	27 1/2	63

NOTES: (1) Louvered is the "default" style and automatically shipped unless non-louvered is specified on order.
(*) Add -2 to end of panel number for panel that accepts 2" filter.



KNOCKOUT FOR DUCTED RETURN
(Requires remote filter grille—
field supplied)
(Ducted return requires
non-louvered panel)

Enclosure Dimensions

Model	Enclosure No.	A	B	C
12, 19, 24RHXT	9EHX01	39 3/4	30 5/8	28
20, 25RHXT	9EHX02	45 3/4	36 5/8	34
26, 31RHXT	9EHX03	51 3/4	42 5/8	40
28, 32, 37RHXT	9EHX04	58 3/4	50	46 3/4

Cap Kit—For Installation Above A Suspended Ceiling

Part No.	Fits Enclosure No.	For Unit Model
9PHX01	9EHX01	12, 19, 24RHXT-C
9PHX02	9EHX02	20, 25RHXT-C
9PHX03	9EHX03	25, 31RHXT-C
9PHX04	9EHX04	28, 32, 37RHXT-C

NOTES: 1. Cap kit is an insulated panel that covers the entire bottom opening of the enclosure (requires ducted return).
2. Cap kit would be used in lieu of the ceiling panel.

GENERAL TERMS OF LIMITED WARRANTY*

Ruud will furnish a replacement for any part of this product which fails in normal use and service within the applicable period stated, in accordance with the terms of the limited warranty.

***For complete details of the Limited and Conditional Warranties, including applicable terms and conditions, contact your local contractor or the Manufacturer for a copy of the product warranty certificate.**

Conditional Parts* (Registration Required) .....Ten (10) Years

Ruud Heating, Cooling & Water Heating • 5600 Old Greenwood Road
Fort Smith, Arkansas 72908 • www.ruud.com

Ruud Canada • 125 Edgeware Road, Unit 1
Brampton, Ontario • L6Y 0P5

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Item 1f:
Formal Interpretation #8: Recessed Ceiling Air Handlers

INSERT MEMO ON THIS PAGE

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Plantation, FL 33324

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broward.org/CodeAppeals

BROWARD COUNTY
BOARD OF RULES AND APPEALS

FBC 7th EDITION (2020)
FORMAL INTERPRETATION (#8)

DATE: July 9, 2020
TO: All Building Officials
FROM: James DiPietro, Administrative Director
SUBJECT: Recessed Ceiling Air Handlers

At its regularly scheduled meeting of July 9, 2020, the Broward County Board of Rules and Appeals approved an interpretation of the following 7th Edition (2020) Florida Building Codes:

1. FBC, Energy Conservation, Sections C501.7 and R501.7.
2. Building systems and components. Thermal efficiency standards are set for the following building systems and components where new products are installed or replaced in existing buildings, and for which a permit must be obtained. New products shall meet the minimum efficiencies allowed by this code for the following systems and components:
    - Heating, ventilating or air-conditioning systems;
    - Service water or pool heating systems;
    - Lighting systems; and
    - Replacement fenestration.
    - Exceptions:
3. Replacement equipment that would require extensive
4. Revisions to other systems, equipment or elements of a building where such replacement is a like-for-like replacement, such as through-the-wall condensing units and PTACs, chillers and cooling towers in confined spaced.

Formal Interpretation:
The replacement of existing Recessed Ceiling Air Handlers that will require the alteration of building walls; as determined by the Building Official or his or her representative, qualifies under the exception 4 to the FBC Energy Conservation 7th Edition section C501.7 and R501.7. As consequence this application needs not meet the minimum SEER required in Section C303.2.3 and Table R405.5.2(1) of said Code as long as the replacement is a "like for like" as stated in the above Exception.

EFFECTIVE DATE: June 30, 2015
RE-ISSUED DATE: July 9, 2020
EFFECTIVE DATE: December 31, 2020

***** PLEASE POST AT YOUR PERMIT COUNTER *****

Item 2a:
BORA Residential Energy Guidelines

BORA Residential Energy Guidelines

Broward County Board of Rules and Appeals

Energy Conservation
Seventh Edition (2020)

FBC Seventh Edition (2020),
Effective XXXXXXXXXX

For BORA Approval
Revision #4
6/15/2021

Table of Contents

Overview

To obtain uniform energy code enforcement in residential 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 Checklist

Plan Review	**Code Section**
☐ **1.** The building official shall appoint a code official to verify that all disciplines have reviewed the plans and the code compliance report for energy code compliance. This code official shall sign the code compliance report stating that the plans have been reviewed by all disciplines and the plans will be inspected according to the FECC.	R103.3 R103.3.1 FS. 553.908

Certificate of Occupancy	**Code Section**
☐ **1.** The building official shall require that an energy performance level (EPL) display card be completed and signed by the building qualifier that it is accurate and correct before final approval for 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 non-presold residential buildings.	R401.3 R405.4.3 #1

Reporting Schedule	**Code Section**
☐ **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 by regular mail or email attachment to raymond-issa@ufl.edu . Copies shall not exceed 300dpi.	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
raymond-issa@ufl.edu

BORA ENERGY GUIDELINES

BORA Structural Checklist

Plan Review	**Code Section**
1. Energy Compliance Report shall match the plans and shall comply with the following:	R405.4.2.1
☐ **A**. The compliance report code version and date.	
☐ **B.** Reports shall include the building street address, and climate zone #1a shall be selected for Broward County from Table R301.1	
☐ **C**. The name of the person who prepared the report, and a signature is required certifying that the proposed design complies with the energy code.	
☐ **D**. The number of bedrooms shall be shown. (Item #4)	
☐ **E**. The conditioned floor area shall be shown on architectural plan. (Item #6)	
☐ **F**. Wall sections shall show the ceiling and wall insulation and shall show R-values. (Item#10)	R103.2 #1
☐ **G**. The building's owner, or architect, or "owner/agent", shall certify compliance with the Florida Energy Conservation Code by signing the prepared compliance report.	R103.1.1.2
☐ **H**. Buildings defined as residential which are three stories and less in height shall comply with the residential energy code. Mixed use buildings shall submit separate compliance reports.	R101.5.1.2 R101.4.1
☐ **I**. Reports which claim a cool roof option shall provide documentation of testing. (Notes)	R405.7.2
Plans	
☐ **2**. The building thermal envelope shall be shown.	R103.2.1
☐ **3**. Air Barrier sealing details and materials used shall be shown.	R103.2 #8
☐ **4**. Window schedules shall include the "NFRC tested" U-factors and SHGC values and shall be shown. Submittals may use Appendix A, "Residential Fenestration Submittal Form". ***(S-1)***	R103.2 #2 R405.4.3 #2

Rough Inspection	**Code Section**
☐ **1.** A continuous air barrier shall be installed in the exterior building's thermal envelope.	R402.4.1.1
☐ **2.** Window/door jambs, framing, and skylights shall be sealed on the exterior frame.	Table R402.4.1.1
☐ **3.** Ceiling and wall insulation R-Values shall match the plans. Manufacturer's instructions shall be followed, and attic vents shall not be blocked. ***(S-2)***	R104.2.2 R303.2
☐ **4.** A label shall be affixed to the window showing the tested U-Value and SHGC. These values shall match the values shown on plans. ***(S-1)***	R303.1.3 R104.2.2

Final Inspection	**Code Section**
☐ **1.** All installed attic insulation shall have an insulation certificate posted at or near the opening of the attic, and an insulation certificate shall be submitted to the AHJ.	R303.1.1.1 R303.1.1.2
☐ **2.** Blown or sprayed insulation shall be installed per inch according to plans. Blown insulation thickness shall be verified with markers installed every 300 sq. ft. Attic vents shall not be blocked.	R303.1.1.2.1 R402.2.3
☐ **3.** Access-openings, drop-down stairs, or knee wall doors to unconditioned attic spaces shall be sealed and baffled to maintain blown insulation. The attic hatch shall be insulated.	R402.2.4 R402.4
☐ **4.** Air sealing shall be provided for the interior garage door and the walls that separate conditioned spaces from the garage area.	R402.4.1.1 Table R402.4.1.1
☐ **5.** Any changes which effect the energy efficiency of the building shall require revised plans and a revised energy compliance report.	R103.4

BORA ENERGY GUIDELINES
BORA Mechanical Checklist

Plan Review	**Code Section**
1. **Energy Compliance Report** shall match the plans and shall comply with the following:	R405.4.2.1
☐ **A**. The site plan showing actual home orientation shall be shown. Worst case orientations shall be accepted. HVAC load calculations shall be site specific. (Item #5)	
☐ **B**. The conditioned floor area shown shall be shown. (Item #6) ***(M-1)***	
☐ **C**. Sliding glass doors and opaque doors with glazing equal to or over 30% of total area shall be included in the windows section. (Item #7)	R405.5.3.3
☐ **D**. Window overhang depth and separations shall be shown. (Item #7) ***(M-2)***	R405.5.3.2
☐ **E**. Floor areas over garages and outside entry areas shall be shown separately. (Item#9)	
☐ **F**. Ceiling areas and insulation values shall be shown. Knee walls shall be shown separately as ceiling area. ***(M-2)***	
☐ **G**. R-values for ext. wall insulation and adj. garage walls shall be shown separately. (Item#10)	
☐ **H**. The R-Value of ducts, surface area, and the location of the ductwork shall be shown.	R405.2
Ductwork that is classified as "leak free" requires a duct leakage test report and shall be a requirement for final inspection. (Item#12)	R405.2.3
☐ **I**. The number of A/C systems, the efficiency rating of each system, and the size of the equipment shall be shown. (Item#13)	R103.2 #5
☐ **J**. The heater type, size, and fuel source shall be shown. (Item#14)	
☐ **K**. Energy credits shall be shown. (Item#16) ***(M-3)***	R405.7
Plans	
☐ **2**. The Energy compliance report and the cooling and heating load calculations shall be	R403.7
submitted with the plans. Cooling equipment selected shall not be more than 1.15 times	R403.7.1.1
greater than the total calculated load. Strip heaters shall be sized within 4 kW of the btu load.	R403.7.1.2.2
☐ **3**. Mechanical design criteria and controls (T-stat) shall be shown.	R103.2 #4
☐ **4**. Duct sealing methods, duct and pipe insulation values, and duct locations shall be shown.	R103.2 #7
☐ **5**. Outdoor air intakes and exhausts shall have automatic or gravity dampers and shall be shown.	R403.6
☐ **6**. Replacement outdoor combustion air and tight-fitting flue dampers or tight-fitting doors for wood burning fireplaces shall be shown.	R402.4.2

Rough Inspection	**Code Section**
☐ 1. Building framing cavities shall not be used as ducts or plenums.	R403.3.5
☐ **2.** Air-handling units may only be installed in the attic if all code exceptions are met.	R403.3.6 #1
a) The service panel of the equipment shall be located within 6 feet of an attic access.	
☐ **3.** All supply and return ducts not completely inside the *building thermal envelope* shall be	R405.2
insulated to a minimum of R-6. Suction line refrigerant piping shall be a minimum of R-3.	R403.4
☐ **4.** All ducts shall be mechanically attached and sealed. The reinforced lining shall be sealed	R403.3.2
and the duct collar flange shall be sealed to the duct board using tape, mastic, or gasket.	C403.2.9.2
The reinforced core shall be mechanically attached to the duct fitting by a draw-band. The outer jacket of the flexible duct shall be sealed to prevent condensation. ***(M-4)***	
☐ **5.** Sufficient space shall be given to install the required ceiling and wall insulation	R402.4.1.1
☐ **6.** Combustion air ducts shall be installed for wood burning fireplaces.	R402.4.2

BORA ENERGY GUIDELINES
BORA Mechanical Checklist

Final Inspection	**Code Section**
☐ **1.** The envelope leakage test report shall be provided to the code official and approved.	R402.4.1.2
☐ **2.** HVAC register boots that penetrate the thermal envelope shall be sealed to the drywall. Penetrations shall be caulked, gasketed or otherwise sealed in a manner compatible with the construction materials and location.	R402.4.1.1
☐ **3.** Sufficient space (about 4 inches) shall be provided adjacent to all mechanical components of the air distribution system to assure room for inspection, seal, and maintenance	R403.3.2 C403.2.9.3.3
☐ **4.** The efficiency rating of each system shall be verified by providing the (AHRI) certificate showing the corresponding model numbers shown on the plans. ***(M-5)***	R405.4.3 #2 R303.1.2
☐ **5.** Mechanical closets and enclosed support platforms shall be sealed to prevent leakage.	R403.3.2
☐ **6.** Piping insulation exposed to weather shall be protected from damage.	R403.4.1
☐ **7.** Tight fitting flue dampers or tight-fitting doors shall be installed for wood burning fireplaces.	R402.4.2
☐ **8.** A duct leakage test report shall be submitted when "leak free" ducts are selected using performance method R405. A test can be performed at rough or post construction.	R405.2.3 R403.3.3
☐ **9.** An envelope leakage test report shall be approved before a final inspection is approved.	R402.4.1.2
☐ **10.** Any changes which effect the energy efficiency of the building shall require revised plans and a revised energy compliance report.	R103.4

BORA Envelope Leakage Test Report Checklist

Report Review	**Code Section**
☐ **1.** The envelope leakage test shall be completed prior to the final inspection.	R402.4.1.2
☐ **2.** The envelope leakage test report form from the approved software, which was submitted at application for permit, shall be used to show compliance with the code. ***(TR-1)***	R101.5.1
☐ **3.** The envelope leakage test report shall have the address and permit number on the report and shall be completed and signed by a qualified tester.	R101.5.1 R402.4.1.2
☐ **4.** The method of compliance shall be indicated on the form and shall match the method selected when the building permit was issued. ***(TR-2)***	R405.2.2 R401.2
☐ **5.** The air change design rate shall be indicated in the box provided on the test report when using the performance method. ***(TR-3)***	R405.2.2 R405.4.2
☐ **6.** Leakage rates that exceeding seven (7) ACH shall indicate "Fail".	R402.4.1.2
☐ **7.** Leakage rates exceeding the design rate from the compliance report shall not "Pass" even though it is under (7) air changes per hr.	R405.2.2 R402.4.1.2
☐ **8.** Buildings with (ACH) rates less than three (3) shall have whole house mechanical ventilation added to the building and shall be indicated on the test report. ***(TR-4)***	R403.6 RBC R303.4
☐ **9.** Buildings where whole house mechanical ventilation is required, shall not pass final inspection. A revised mechanical plan showing compliance with the residential building code shall be provided when whole house ventilation is required.	R103.4 RBC R303.4

BORA ENERGY GUIDELINES

BORA Plumbing Checklist

Plan Review	**Code Section**
1. **Energy Compliance Report** shall match the plans and shall comply with the following:	R405.4.2.1
☐ **A.** Service water heating appliance size and efficiency shall be shown. (Item#15)	R103.2 #5
Plans	
☐ **2.** Provide AHRI efficiency documentation for water heaters**.** Water-heating equipment installed in residential units shall meet the minimum efficiencies of Table C404.2. ***(P-1)***	R405.4.3 #2 R403.5.6.2
☐ **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
☐ **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
☐ **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
☐ **6.** Residential pools shall meet the requirements of APSP-15 (Standard for Energy Efficiency for Residential Inground Swimming Pools & Spa's).	R403.12

Rough Inspection	**Code Section**
☐ **1**. Sufficient space shall be left for insulation on exterior walls adjacent to showers and tubs.	R402.4.1.1
☐ **2**. If a heated water circulation system is installed, it shall be provided with an accessible circulation pump. The automatic controls, temperature sensors, and the manual controls shall be readily accessible for operation.	R403.5.1

Final Inspection	**Code Section**
☐ **1**. Storage water heating model numbers and equipment efficiencies shall be verified and match the plumbing plans. ***(P-1)***	R403.5.6.2
☐ **2**. Electric, gas, and oil type pool and spa heating equipment efficiencies shall be verified and match the plans.	R403.10
☐ **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. A liquid cover or other means proven to reduce heat loss may be used and shall be on the job for final inspection. Heat pump and solar type heaters are excluded from this requirement.	R403.10.3
☐ **4**. Any changes which effect the energy efficiency of the building shall require revised plans and a revised energy compliance report.	R103.4

BORA ENERGY GUIDELINES
BORA Electrical Checklist

Plan Review	**Code Section**
1. **Energy Compliance Report** shall match the plans and shall comply with the following:	R405.4.2.1
☐ **A.** Comfort heating and service water heating appliances using electricity shall be shown. (Item#14 &15)	
☐ **B.** When a ceiling fan energy credit is indicated, ceiling fans and fan blade sizes are to be shown. (Item#16) ***(E-1)***	R405.7.6 Table R405.7.6
Plans	
☐ **2.** When a ceiling fan energy credit is indicated on the energy compliance report. The required fans and blade sizes shall be shown.	R405.7.6 Table R405.7.6
☐ **3.** 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 R103.2 #8
☐ **4.** Recessed lighting shall be IC-rated and *labeled* as having an air leakage rate not more than 2.0 cfm when tested in accordance with ASTM E283	R402.4.5
☐ **5.** 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

Rough Inspection	**Code Section**
☐ **1.** An air barrier shall be installed behind electrical or communication boxes or air sealed boxes shall be installed when these boxes are in the exterior thermal envelope.	R402.4.1.1 Table R402.4.1.1
☐ **2.** Thermal envelope penetrations by electrical conduits and cables in the wall top plate shall be sealed.	R402.4.1.1 Table R402.4.1.1

Final Inspection	**Code Section**
☐ **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
☐ **2.** Ceiling fans shall be installed per the electrical drawings.	R405.7.6
☐ **3**. Any changes which effect the energy efficiency of the building shall require revised plans and a revised energy compliance report.	R103.4

Appendix A

Residential Fenestration Product Rating Submittal Form

In accordance with R405.4.3.2 #2 of the Florida Energy Conservation Code. This form is a tool for the submittal process of the proposed energy product rating for windows, doors, and skylights.

Recommended for Review:

- ○ Copy of the approved energy compliance report "window checklist" showing each fenestration design rating (U-value and SHGC) for all fenestration in the entire building.
- ○ A list of the NFRC "Certified Product Directory" number of each window showing the U-Value and SHGC on the attached form. These numbers can be found on the NFRC site: https://search.nfrc.org/search/searchDefault.aspx

Notes:

- *Products not listed in the NFRC directory shall be tested by an accredited, independent laboratory in accordance with FECC R303.1.3. Products not tested and lacking certification and labeling shall be assigned a default rating from the energy tables.*
- *Products submitted that do not match the approved energy window checklist shall require a revised energy compliance report or window submittal per FECC R103.4*

#	NFRC Directory Number	Description	U-Value	SHGC
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
11				

Window #	NFRC Directory Number	Description	U-Value	SHGC
12				
13				
14				
15				
16				
17				
18				
19				
20				
21				
22				
23				
24				
25				
26				
27				
28				
29				
30				
31				
31				
33				
34				
35				
36				
37				
38				

TABLE R303.1.3(1)

DEFAULT GLAZED FENESTRATION U-FACTORS

FRAME TYPE	SINGLE PANE	DOUBLE PANE	SKYLIGHT	
			SINGLE	DOUBLE
Metal	1.20	0.80	2.00	1.30
Metal with Thermal Break	1.10	0.65	1.90	1.10
Nonmetal or Metal Clad	0.95	0.55	1.75	1.05
Glazed Block	0.60			

TABLE R303.1.3.(2)

DEFAULT OPAQUE DOOR U-FACTORS

DOOR TYPE	U-FACTOR
Uninsulated Metal	1.20
Insulated Metal	0.60
Wood	0.50
Insulated, nonmetal edge, max 45% glazing. Any glazing double pane	0.35

Example

Compliance Report Checklist

WINDOWS

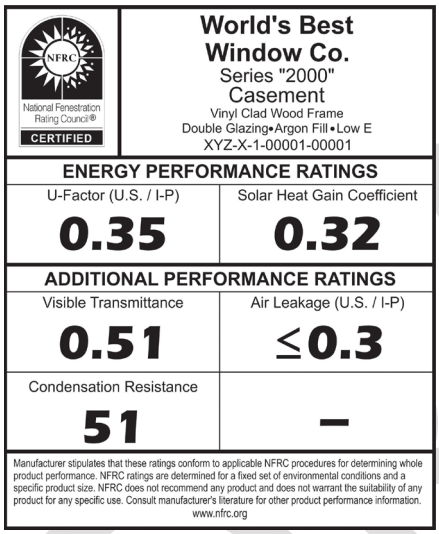
Orientation shown is the entered, Proposed orientation.

√	#	Ornt	Wall ID	Frame	Panes	NFRC	U-Factor	SHGC	Imp	Area	Overhang Depth	Overhang 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

Appendix B

STRUCTURAL NOTES

S-1 Windows are required to be tested for energy efficiency. U-factors shall be determined in accordance with NFRC 100. The VT (Visual Transmittance) and the SHGC (Solar Heat Gain Coefficient) shall be determined in accordance with NFRC 200. Testing is required to be done by an accredited independent laboratory and then labeled and certified by the manufacturer. The code does require certification by an independent agency. The code also does not required certification by NFRC. Some manufactures have chosen to "Self-Certify" their product after testing by an accredited independent laboratory. These products are not certified by NFRC and will not be listed in the NFRC's "Certified Products Directory." Products not certified by NFRC will need to provide a "Thermal Simulation Report" from an accredited independent laboratory. Testing values from the "Simulated Data" shall match the label on the product in accordance with FECC R303.1.3.



S-2 The plans shall be specific as to what that type and R-value of insulation is to be installed. It is unacceptable to have comments on the plan details that indicate: "see energy calculations". Baffles are required for blown in insulation to keep the vents from becoming blocked upon installation and drift.

MECHANICAL NOTES

M-1 The conditioned floor area is found on the architectural plans. The ceiling areas shall match the conditioned floor area on single story homes with a flat ceiling height throughout the home. On a two-story home, the second-floor conditioned floor area shall match this ceiling area. "Knee walls" occur when ceiling heights change from a vaulted ceiling to a lower ceiling height. Knee walls adjacent to the attic area and shall be listed separately as ceiling area on the compliance report. Knee walls shall not be shown as exterior wall area. (See figure A)

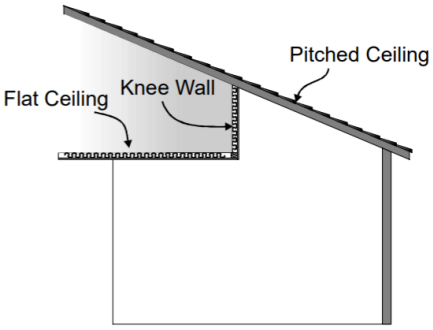


Figure A

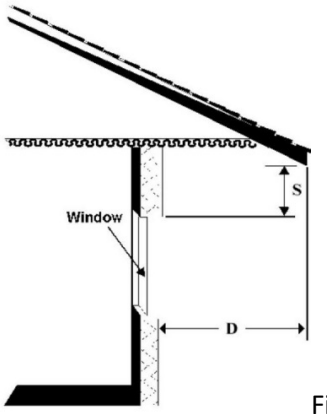


Figure B

M-2 Overhang measurements shall match what is listed on the compliance report. Overhangs are measured in terms of "Depth", which is the horizontal measure protruding from the building and "Separation", which is the vertical distance from the overhang to the top of the window. (See Figure B)

M-3 Energy credits shall be verified. The credits are indicated by abbreviations on the compliance report or by statement notes on the bottom of the compliance report.

Examples: PSTAT- Programmable Thermostat, **RB**- Radiant Barrier, **CV**- Cross Ventilation, **WHF**- Whole House Fan, **CF**- Ceiling Fans, **HRU**- Heat Recovery Unit, **HP**- Heat Pump.

Tested "Cool Roof" roof absorption and emittance test values, and a "Duct Leakage Test Report" lower than 8% default leakage are possible credits shown in the notes.

M-4 The mechanical attachment and sealing of the flexible ductwork's collar and inner core are hidden to the inspector by the insulation and vapor barrier during assembly. The tabs shall be bent over, and a draw-band shall be installed for a proper mechanical attachment. The collar flange and the inner core shall also be sealed airtight. The draw-band is not a code approved seal for flexible duct. Flexible duct joints shall be spot checked for compliance with this section by having the contractor open the duct joint for visual inspection.

M-5 Certificates can be obtained by going to the AHRI Certification Directory to verify equipment is designed to be operated together. Water heater efficiencies found in the directory are shown in UEF and shall be converted to EF to match the compliance report. A conversion calculator is found on the Resnet website.

ENVELOPE LEAKAGE TEST REPORT NOTES

TR-1 The FBC approved software will generate an approved "Envelope Leakage Test Report" form and fill in important information such as the volume and the required air change rate specified by the designer.

TR-2 The designer of record chooses which method of energy code compliance whether performance or prescriptive. Designers using compliance report R405-2020 shall select performance on the blower door test report. The testing agent shall not select prescriptive when the designer chooses performance method of compliance.

TR-3 The design air change rate (ACH), chosen by the designer of record, shall be indicated in the box provided when using performance R405-2020 compliance report.

TR-4 It is the code official's responsibility to make sure this box is checked when the air change rate (ACH) is less than 3(ACH). This selection shall trigger the mechanical designer of record to determine which method they shall use to provide additional ventilation and then submit a revised plan.

PLUMBING NOTES

P-1 The efficiency of the water heaters shown on the compliance report is shown in "EF" and the AHRI efficiency is now shown with a new standard referred to as "UEF". A conversion is required to verify.

ELECTRICAL NOTES

E-1 When a ceiling fan credit is taken, the ceiling fans shall be indicated on the electrical drawings. Future fans shall not be indicated when this credit is taken. The fans shall be installed per the plans at the electrical final inspection according to Table R405.7.6. Ceiling fans shall be installed in each of the bedrooms and a minimum of one living area in order to receive credit.

TABLE R405.7.6
FAN SIZING TABLE

LONGEST WALL LENGTH (feet)	MINIMUM FAN SIZE (inches)
= 12	36
>12-16	48
>16-17.5	52
>17.5-25	56
>25	2 fans (minimum of 48 inches each)

Item 2b:
Residential Compliance Forms 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 C402.5*
- ☐ *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)*

FORM R405-2020

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

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

10. Wall Types (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

a. Electric	Cap: 50 gallons
	EF: 0.945
b. Conservation features	
None	

16. Credits: None

Glass/Floor Area: 0.160

Total Proposed Modified Loads: 60.15
Total Baseline Loads: 60.46

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: _____

- 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.

FORM R405-2020

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 %	Design Temp 2.5 %	Int Design Temp Winter	Int Design Temp 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

FORM R405-2020

INPUT SUMMARY CHECKLIST REPORT

WALLS

√	#	Ornt	Adjacent To	Wall Type	Space	Cavity R-Value	Width Ft	Width In	Height Ft	Height 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	Width In	Height Ft	Height 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	Overhang 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

FORM R405-2020

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 ---- Location	R-Value	Area	---- Return ---- Location	Area	Leakage Type	Air Handler	CFM 25 TOT	CFM25 OUT	QN	RLF	HVAC # Heat	Cool
_____	1	Attic	8	400 ft²	Attic	100 ft²	Prop. Leak Free	Main	--- cfm	60.0 cfm	0.03	0.50	1	1

TEMPERATURES

Programable Thermostat: N

Ceiling Fans:

Cooling	[X] Jan	[X] Feb	[X] Mar	[X] Apr	[X] May	[X] Jun	[X] Jul	[X] Aug	[X] Sep	[X] Oct	[X] Nov	[X] Dec
Heating	[X] Jan	[X] Feb	[X] Mar	[X] Apr	[X] May	[X] Jun	[X] Jul	[X] Aug	[X] Sep	[X] Oct	[X] Nov	[X] Dec
Venting	[X] Jan	[X] Feb	[X] Mar	[X] Apr	[X] May	[X] Jun	[X] Jul	[X] Aug	[X] Sep	[X] Oct	[X] Nov	[X] 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
	PM	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
	PM	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
	PM	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
	PM	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)	
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 (ft²)	2000	
7. Windows**	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:		
d. U-Factor:	N/A	ft²
SHGC:		
Area Weighted Average Overhang Depth:		0.000 ft.
Area Weighted Average SHGC:		0.250
8. Skylights	Description	Area
a. U-Factor(AVG):	N/A	ft²
SHGC(AVG):	N/A	

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

10. Wall Type and Insulation	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 Type and insulation level	Insulation	Area
a. Under Attic (Vented)	R=38.0	2000.00 ft²
b. N/A	R=	ft²
c. N/A	R=	ft²

12. Ducts, location & insulation level	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	
a. Electric	Cap: 50 gallons
	EF: 0.94
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/m2), and swinging doors no more than 0.5 cfm per square foot (2.6 L/s/m2), 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 Qn to the outside of less than 0.080 (where Qn = 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 [a] (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 [a]

				CHECK
Project Name:	Example_2020_Florida_Code_R405_Reports	Builder Name:	John Q. Hammer	
Street:	Anyplace	Permit Office:		
City, State, Zip:	Tampa , FL , 34345	Permit Number:		
Owner:	Energy Gauge	Jurisdiction:		
Design Location:	FL, Tampa			

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 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 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 #:

Job Information

Builder: John Q. Hammer Community: Lot: NA

Address: Anyplace

City: Tampa State: FL Zip: 34345

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): 7.000

_____ x 60 ÷ 18000 = _____
CFM(50) Building Volume ACH(50)

☐ **PASS**

☐ When ACH(50) is less than 3, Mechanical Ventilation installation must be verified by building department.

Method for calculating building volume:

◯ Retrieved from architectural plans

● Code software calculated

◯ Field measured and calculated

R402.4.1.2 Testing. Testing shall be conducted in accordance with ANSI/RESNET/ICC 380 and reported at a pressure of 0.2 inch w.g. (50 Pascals). Testing shall be conducted by either individuals as defined in Section 553.993(5) or (7), *Florida Statues.*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 #:

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

_____ ÷ 2000 = _____Qn
Total of all systems / Total Conditioned Square Footage

○ **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 ($^{=.04}_{Qn}$) ☐ NO ($^{=.03}_{Qn}$)

○ **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: _____