What is an Energy Efficient home?

405 EnergyGauge Software is a a comparison

of

1) Modified Loads (As-Built Design)

to

2) Baseline Loads (Standard Reference Design)

Total Modified Loads (As-Built Design) must equal or exceed Standard Reference design for a passing score.

Why is it important that the information in the Energy Calculation (Compliance Report) match the home?

Why is it important that the information in the Energy Calculation match the home?

Answer

Only one incorrect entry could cause the house to fail and not be code compliant.

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	200.00 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

TABLE R405.5.2(1)
SPECIFICATIONS FOR THE STANDARD REFERENCE AND PROPOSED DESIGNS

BUILDING COMPONENT	STANDARD REFERENCE DESIGN	PROPOSED DESIGN
Above-grade walls	Type: mass wall if proposed wall is mass; otherwise wood frame	As proposed
	Gross area: same as proposed	As proposed
	U-factor: as specified in Table R402.1.4 U-.151 R-6.6	As proposed
	Solar absorptance = 0.75	As proposed
	Emittance = 0.90	As proposed
Basement and crawl space walls	Type: same as proposed	As proposed
	Gross area: same as proposed	As proposed
	U-factor: from Table R402.1.4, with insulation layer on interior side of walls	As proposed
Above-grade floors	Type: wood frame	As proposed
	Gross area: same as proposed	As proposed
	U-factor: as specified in Table R402.1.4 U- .064 R-15.6	As proposed
Ceilings	Type: wood frame	As proposed
	Gross area: same as proposed	As proposed
	U-factor: as specified in Table R402.1.4 U-.027 R-37	As proposed
Roofs	Type: composition shingle on wood sheathing	As proposed
	Gross area: same as proposed	As proposed
	Solar absorptance = 0.75	As proposed
	Emittance = 0.90	As proposed
Attics	Type: vented with aperture = 1 ft^2 per 300 ft^2 ceiling area	As proposed
Foundations	Type: same as proposed	As proposed
	Foundation wall area above and below grade and soil characteristics: same as proposed	As proposed
Opaque doors	Area: 40 ft^2	As proposed
	Orientation: North	As proposed
	U-factor: same as fenestration from Table R402.1.4	As proposed
Vertical fenestration other than opaque doors	Vertical fenestration area[h] = (a) The proposed vertical fenestration area (AVF), where the proposed total fenestration area (AF) is less than 15 percent of the conditioned floor area, (CFA) or (b) The adjusted vertical fenestration area (AVF_{adj}), where (AF) is 15 percent or more of CFA. AVF_{adj} shall be calculated as follows: $AVF_{adj} = AVF \cdot 0.15 \cdot CFA/AF$	As proposed
	Orientation: equally distributed to four cardinal compass orientations (N, E, S & W)	As proposed
	U-factor: as specified for Fenestration in Table R402.1.4	As proposed
	SHGC: as specified for Glazed Fenestration in Table R402.1.2 except that for climate zones with no requirement (NR) SHGC = 0.40 shall be used	As proposed
	Interior shade fraction: 0.92 - (0.21 × SHGC for the standard reference design)	0.92 - (0.21 × SHGC as proposed)
	External shading: none	As proposed

(continued)

TABLE R402.1.4
EQUIVALENT *U*-FACTORS[a]

CLIMATE ZONE	FENESTRATION *U*-FACTOR	SKYLIGHT *U*-FACTOR	CEILING *U*-FACTOR	FRAME WALL *U*-FACTOR	MASS WALL *U*-FACTOR[b]	FLOOR *U*-FACTOR	BASEMENT WALL *U*-FACTOR	CRAWL SPACE WALL *U*-FACTOR
1	0.50	0.75	0.035	0.084	0.197	0.064	0.360	0.477
2	0.40	0.65	0.030	0.084	0.165	0.064	0.360	0.477
3	0.35	0.55	0.030	0.060	0.098	0.047	0.091[c]	0.136
4 except Marine	0.35	0.55	0.026	0.060	0.098	0.047	0.059	0.065
5 and Marine 4	0.32	0.55	0.026	0.060	0.082	0.033	0.050	0.055
6	0.32	0.55	0.026	0.045	0.060	0.033	0.050	0.055
7 and 8	0.32	0.55	0.026	0.045	0.057	0.028	0.050	0.055

a. Nonfenestration *U*-factors shall be obtained from measurement, calculation or an approved source.

b. When more than half the insulation is on the interior, the mass wall U-factors shall be a maximum of 0.17 in Climate Zone 1, 0.14 in Climate Zone 2, 0.12 in Climate Zone 3, 0.087 in Climate Zone 4 except Marine, 0.065 in Climate Zone 5 and Marine 4, and 0.057 in Climate Zones 6 through 8.

c. Basement wall *U*-factor of 0.360 in warm-humid locations as defined by Table R301.1.

Air exchange rate	Air leakage rate of 7.00 air changes per hour in Climate Zones 1 and 2, and 3 air changes per hour in Climate Zones 3 through 8 at a pressure of 0.2 inches w.g. (50 Pa). The mechanical ventilation rate shall be in addition to the air leakage rate and the same as in the proposed design, but no greater than $0.01 \times CFA + 7.5 \times (N_{br} + 1)$ where: CFA = conditioned floor area N_{br} = number of bedrooms Energy recovery shall not be assumed for mechanical ventilation.	The measured air exchange rate[a]. The mechanical ventilation rate[b] shall be in addition to the air leakage rate and shall be as proposed.
Mechanical ventilation	None, except where mechanical ventilation is specified by the proposed design, in which case: Annual vent fan energy use: $kWh/yr = (1/e_f) \times (0.0876 \times CFA + 65.7 \times (N_{br} + 1))$ where: CFA = conditioned floor area N_{br} = number of bedrooms, and e_f = the minimum exhaust fan efficacy from Table R403.6.1 corresponding to a flow rate of $0.01 \times CFA + 7.5 \times (N_{br} + 1)$	As proposed
Internal gains	$IGain = 17{,}900 + 23.8 \times CFA + 4104 \times N_{br}$ (Btu/day per dwelling unit)	Same as standard reference design.
Internal mass	An internal mass for furniture and contents of 8 pounds per square foot of floor area	Same as standard reference design, plus any additional mass specifically designed as a thermal storage element[c] but not integral to the building envelope or structure.
Structural mass	For masonry floor slabs, 80 percent of floor area covered by R-2 carpet and pad, and 20 percent of floor directly exposed to room air	As proposed
	For masonry basement walls, as proposed, but with insulation required by Table R402.1.4 located on the interior side of the walls	As proposed
	For other walls, for ceilings, floors, and interior walls, wood frame construction	As proposed
Heating systems[d, e]	Type: heat pump if proposed heating system is electric; otherwise as proposed Efficiency: in accordance with prevailing federal minimum standards Capacity: sized in accordance with Section R403.7 Fuel type: same as proposed	As proposed As proposed As proposed As proposed
Cooling systems[d, f]	Fuel type: electric Capacity: sized in accordance with Section R403.7. Efficiency: in accordance with prevailing federal minimum standards	As proposed As proposed As proposed

(continued)

	Dehumidifier Duct Surface Area: N/A	As proposed
Dehumidistat	None, except where dehumidification equipment is specified by the proposed design, in which case: Setpoint turn on = 60% relative humidity Setpoint turn off = 55% relative humidity	Same as standard reference design
Service water heating[d, e, f, g]	Fuel type: as proposed Use (gal/day): determined in accordance with ANSI/RESNET/ICC 301 Efficiency: in accordance with prevailing federal minimum standards Energy consumption: determined in accordance with ANSI/RESNET/ICC 301	Fuel type: as proposed Use gal/day: determined in accordance with ANSI/ RESNET/ICC 301 Efficiency: as proposed Energy consumption: determined in accordance with ANSI/RESNET/ICC 301
Thermal distribution systems	Distribution system efficiency: 0.88 Duct location: entirely within the building thermal envelope Air handler location: entirely within the building thermal envelope Duct insulation: R-6	Thermal distribution system efficiency shall be as tested in accordance with ANSI/RESNET/ICC 380 or if not tested, shall be modeled as a Qn to outside of 0.080 for ducted systems. Hydronic and ductless systems shall be as specified in Table R405.5.2(2) if not tested. As proposed As proposed As proposed
Thermostat	Type: Manual, cooling temperature setpoint = 75°F; Heating temperature setpoint = 72°F	Same as standard reference

(continued)

Item	Standard Design	Proposed	
Ceiling Insulation	R-37	R-30	+1
Wall Insulation	R-6.6	R-4.1	+2
Window SHGC	0.25	0.4	+3
U-Value	NR	NR	0
Equal Load Orentation	NESW	West Load	+1
ACH from blower door	7	7	0
% Glass to Area	15%	17%	+3
A/C Unit	14 Seer	16 Seer	-5
T-stat	Regular	Prog.	-1
Water Heater/50	0.92	0.94	-4
Overhangs	None	5 Ft. Aver.	-4
Ductwork R-Value	R-6 min	R-6	0
Ductwork Location	In Cond. Space	In Attic	+2.5
Ductwork Area	In Cond. Space	In Attic	+.5
Cool Roof	Default	NONE	0
Total			**-1**

Water Heaters

Uniform Energy Factor (UEF)

is a new metric for determining the energy efficiency of a water heater. UEF's are determined by the estimated usage of a water heater: When selecting the most efficient unit for you, consider the fuel type and the capacity needs for your home.

First Hour Rating

The first hour rating is the number of gallons of hot water the heater can supply per hour (starting with a tank full of hot water).

Residential-Duty Commercial Gas-Fired Storage (> 75,000 Btu/h, ≤ 105,000 Btu/h) - Minimum UEF†				
Volume (gallons)	0 ≤ FHR < 18	18 ≤ FHR < 51	51 ≤ FHR < 75	FHR ≥ 75
50	0.22	0.48	0.55	0.61
60	0.21	0.46	0.53	0.61
75	0.2	0.45	0.52	0.59
80	0.2	0.44	0.51	0.59

Consumer Electric Storage - Minimum UEF*	FHR-First Hour Rating			
Volume (gallons)	0 ≤ FHR < 18	18 ≤ FHR < 51	51 ≤ FHR < 75	FHR ≥ 75
30	0.86	0.92	0.92	0.93
40	0.85	0.91	0.92	0.93
50	0.84	0.91	0.92	0.93
55	0.84	0.91	0.92	0.93
60	1.86	1.98	2.05	2.18
75	1.84	1.96	2.03	2.16
80	1.84	1.96	2.03	2.15

AHRI CERTIFIED®
www.ahridirectory.org

Certificate of Product Ratings

AHRI Certified Reference Number : 206221410 Date : 02-24-2021 Model Status : Active

Brand Name : A. O. SMITH

Model Number : ENT-50-1**

Rated as follows in accordance with Department of Energy (DOE) Water Heater test procedures as published in the latest edition of the Code of Federal Regulations, 10 CFR Part 430 Subpart B Appendix E and subject to verification of rating accuracy by AHRI-sponsored, independent, third party testing:

First Hour Rating (GPH) : 62

Uniform Energy Factor : 0.92

The following data is for reference only and is not certified by AHRI

Energy Source : Electric Resistance

Heater Type : Storage

Usage Bin : Medium Usage

Nominal Capacity (gal) : 50

DOE Rated Storage Volume (gal) : 46

Input (kW) : 4.5

Recovery Efficiency, (%) : 98

Heat Traps : Yes

†"Ac ive" Model Status are those that an AHRI Certification Program Participant is currently producing AND selling or offering for sale; OR new models hat are being marketed but are not yet being produced."Produc ion 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.: 13258648425529995 2

Resnet has provided a excel conversion calculator to convert the Uniform Energy Factor (UEF) to the old Energy Factor (EF) . Most AHRI certificates now list the efficiency in UEF. The energy calcs use EF. In order to determine if the proper efficiency water heater is installed in a home you must look at the energy report (energy calcs). This is the minimum required for the home based on the energy report. Anything less could cause the entire house to fail because specifically on this house the proposed points are very close to the baseline.

Step by step instruction on how to check compliance.

1) Look at the Energy Report to see what is required.
2) Look at the model number of the heater on the label in the home.
3) Go to the AHRI web site to get the efficiency of the heater. Find it at https://www.ahridirectory.org/Search/SearchHome?ReturnUrl=%2f or have contractor provide this certificate
4) Find the UEF listed for the water heater on the certificate.
5) Open the calculator and enter the UEF in the appropriate box from the certificate.
6) Read the EF conversion calculator and see if the EF is the same or better than EF on the energy calc.
7) If the inspection fails because the EF installed is lower than EF which was proposed. Have them change the heater or revise the energy calcs.

RESNET Energy Factor Conversion Equations based on Water Heater Type

Water Heater Type	EF Conversion Equation	Uniform Energy Factor (UEF)*	Energy Factor (EF)**	Constraints
Consumer Gas-Fired Water Heater	EF = 0.9066 * UEF + 0.0711		0.07	
Consumer Electric Water Heater (Electric Resistance)	EF = 2.4029 * UEF - 1.2844		-1.28	Energy Factor should be the minimum of 0.96 and the Calculated Energy Factor
Consumer Electric Water Heater (Heat-Pump)	EF = 1.2101 * UEF - 0.6052		-0.61	
Instantaneous Gas-Fired Water Heater	EF = UEF		0.00	
Instantaneous Electric Water Heater	EF = UEF		0.00	
Residential-Duty Commercial Gas-Fired Water Heater	EF = 1.0005 * UEF + 0.0019		0.00	
Residential-Duty Commercial Electric Instantaneous Water H	EF = 1.0219 * UEF - 0.0025		0.00	Calculated Energy Factor should be <= 1.0. The EF estimation equations can generate Efs greater than 1.0

** Enter the Uniform Energy Factor (UEF) based on the AHRI directory*

*** The Energy Factor (EF) is calculated based on regression analysis of EF conversion equations found in the Federal Register, based on differing hot water draw patterns, with support from the California Energy Commission (CEC).*

Windows

What is more important for Energy Code Compliance?

U-Factor or SHGC (Heat Gain Coefficient)?

Windows

What is more important for Energy Code Compliance?

SHGC (Heat Gain Coefficient)

Vertical fenestration other than opaque doors	Vertical fenestration area[h] = (a) The proposed vertical fenestration area (AVF), where the proposed total fenestration area (AF) is less than 15 percent of the conditioned floor area, (CFA) or (b) The adjusted vertical fenestration area (AVF_{adj}), where (AF) is 15 percent or more of CFA. AVF_{adj} shall be calculated as follows: $AVF_{adj} = AVF \cdot 0.15 \cdot CFA/AF$	As proposed
	Orientation: equally distributed to four cardinal compass orientations (N, E, S & W)	As proposed
	U-factor: as specified for Fenestration in Table R402.1.4	As proposed
	SHGC: as specified for Glazed Fenestration in Table R402.1.2 except that for climate zones with no requirement (NR) SHGC = 0.40 shall be used	As proposed
	Interior shade fraction: 0.92 - (0.21 × SHGC for the standard reference design)	0.92 - (0.21 × SHGC as proposed)
	External shading: none	As proposed

(continued)

TABLE R402.1.2
INSULATION AND FENESTRATION REQUIREMENTS BY COMPONENT[a]

CLIMATE ZONE	FENESTRATION *U*-FACTOR[b, j]	SKYLIGHT[b] *U*-FACTOR	GLAZED FENESTRATION SHGC[b, e]	CEILING *R*-VALUE	WOOD FRAME WALL *R*-VALUE	MASS WALL *R*-VALUE[i]	FLOOR *R*-VALUE	BASEMENT[c] WALL *R*-VALUE	SLAB[d] *R*-VALUE & DEPTH	CRAWL SPACE[c] WALL *R*-VALUE
1	NR	0.75	0.25	30	13	3/4	13	0	0	0
2	0.40	0.65	0.25	38	13	4/6	13	0	0	0
3	0.35	0.55	0.25	38	20 or 13+5[h]	8/13	19	5/13[f]	0	5/13
4 except Marine	0.35	0.55	0.40	49	20 or 13+5[h]	8/13	19	10 /13	10, 2 ft	10/13
5 and Marine 4	0.32	0.55	NR	49	20 or 13+5[h]	13/17	30[g]	15/19	10, 2 ft	15/19
6	0.32	0.55	NR	49	20+5 or 13+10[h]	15/20	30[g]	15/19	10, 4 ft	15/19
7 and 8	0.32	0.55	NR	49	20+5 or 13+10[h]	19/21	38[g]	15/19	10, 4 ft	15/19

44483857

PO # NOT FOUND

NFRC

National Fenestration Rating Council®

CERTIFIED

Series 120

Sentinel

Bronze Powder

5/16" Lami (Ann/Ann)

Series 120 Horizontal Roller - XO

CDR-K-13-00012-00011

ENERGY PERFORMANCE RATINGS

U-Factor (U.S./I-P)	Solar Heat Gain Coefficient
1.06	0.28

ADDITIONAL PERFORMANCE RATINGS

Visible Transmittance	
0.47	-
Condensation Resistance	
14	-

Manufacturer stipulates that these ratings conform to appli

	Example_2020_Florida_Code_R405_Reports	Builder Name:	John Q. Hammer
	Anyplace	Permit Office:	
, Zip:	Tampa , FL , 34345	Permit Number:	
	Energy Gauge	Jurisdiction:	
n Location:	FL, Tampa	County:	Hillsborough (Florida Climate Zone 2)

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

loor Area: 0.160

Total Proposed Modified Loads: 60.15
Total Baseline Loads: 60.46

PASS

hat the plans and specifications covered by
in compliance with the Florida Energy

Review of the plans and
specifications covered by this

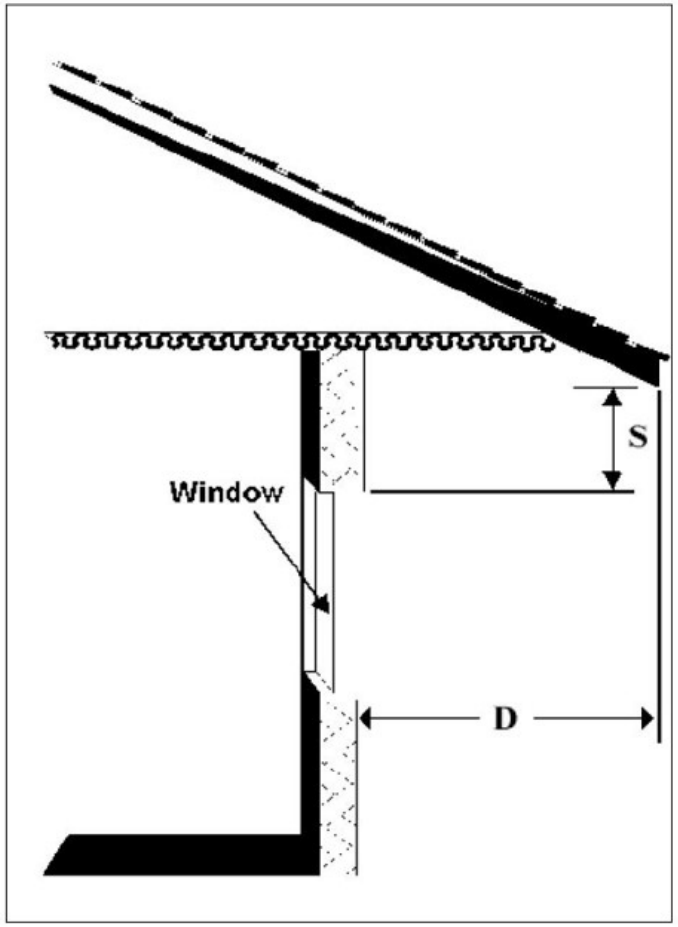
R405.5.3.3 Doors with glazing. For doors that are opaque or where the glass is less than one-third of the area of the door, the total door area shall be included in the door calculation. For unlabeled sliding glass doors or when glass areas in doors are greater than or equal to one-third of the area of the door, the glazing portion shall be included in the glazing calculation and the opaque portion of the door shall be included in the door calculation. When glass areas in doors are greater than or equal to one-third of the area of the door, the door shall be included in the glazing calculation as a total fenestration using the tested *U*-factor and solar heat gain coefficient.

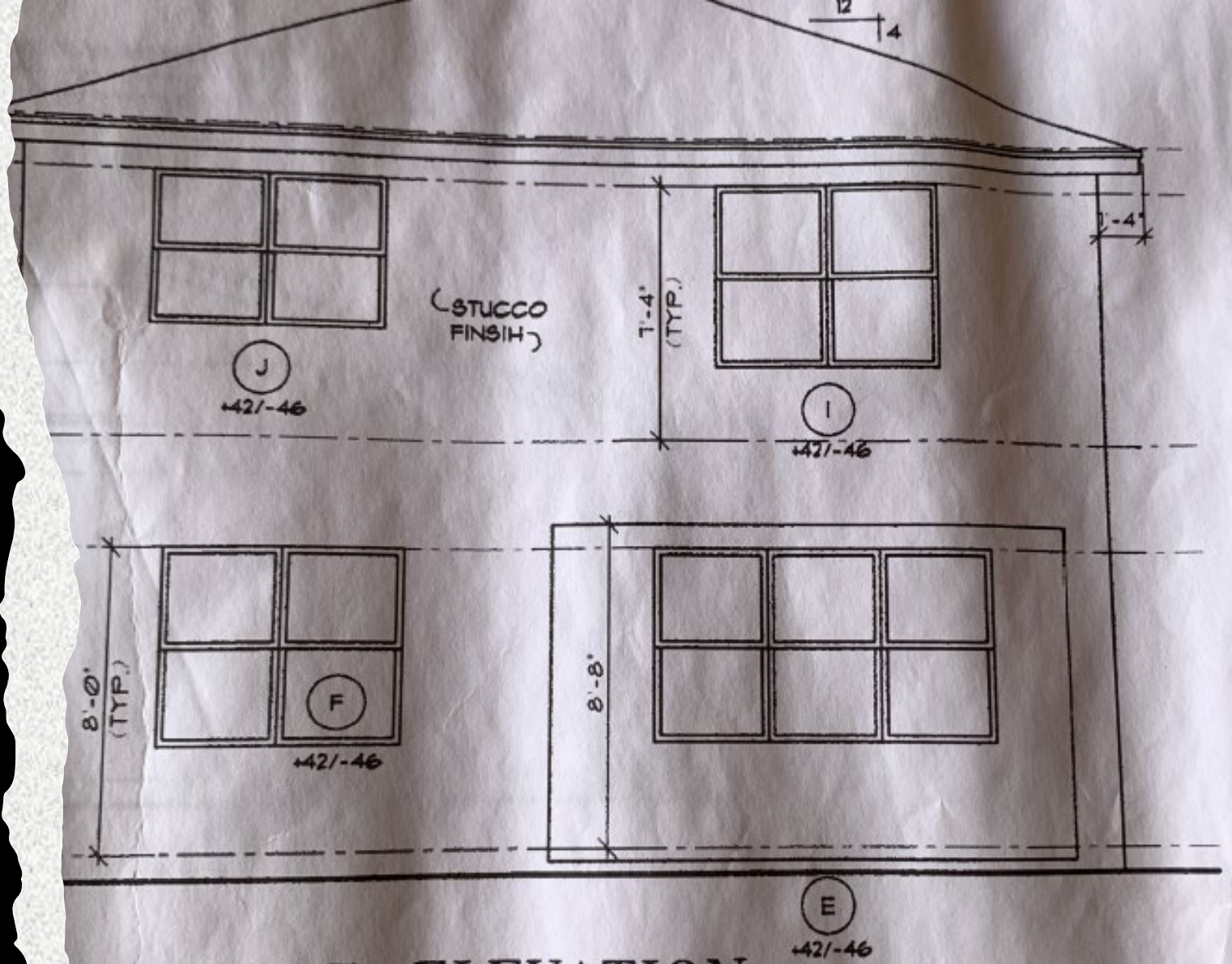
R405.5.3.4 Maximum fenestration SHGC. The Proposed Design must have either an area-weighted average maximum fenestration SHGC of 0.50 or a window area-weighted average overhang depth of 4.0 feet or greater (all conditioned space windows must be included in the calculation). The area-weighted average maximum fenestration *U*-factor permitted using tradeoffs from Section R402.1.5 or R405 shall be 0.48 in Climate Zones 4 and 5 and 0.40 in Climate Zones 6 through 8 for vertical fenestration, and 0.75 in Climate Zones 4 through 8 for skylights. The area-weighted average maximum fenestration SHGC permitted using tradeoffs from Section R405 in Climate Zones 1 through 3 shall be 0.50.

Overhangs on Windows and Glass Doors

Overhang Note

Determine overhang depth (D) and separation (S) as shown in the figure below:





REAR ELEVATION

SCALE: 1/4" = 1'-0"

FORM R405-2017

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	NE	Exterior	Concrete Block - Ext Insul	Main	4.0999	26	8	8		213.3 ft²	0	0	0.150000	0
___	2	SW	Exterior	Concrete Block - Ext Insul	Main	4.0999	40	0	8		320.0 ft²	0	0	0.150000	0
___	3	SE	Exterior	Concrete Block - Ext Insul	Main	4.0999	58	0	8		464.0 ft²	0	0	0.150000	0
___	4	N	Neighbor	Concrete Block - Ext Insul	Main	4.0999	72		8		576.0 ft²	0	0	0.150000	0
___	5	N	Garage	Frame - Wood	Main	11	18	4	8		146.7 ft²	0	0.1	0.150000	0

DOORS

√	#	Ornt	Door Type	Space	Storms	U-Value	Width Ft	Width In	Height Ft	Height In	Area
___	1	NE	Insulated	Main	None	.46	1		2		2 ft²
___	2	SW	Insulated	Main	None	.46	2		2		4 ft²
___	3	N	Wood	Main	None	.46	3		6	8	20 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	NE	1	Metal	Single (Tinted)	Yes	1.02	0.4	N	13.3 ft²	2 ft 0 in	1 ft 6 in	None	None
___	2	NE	1	Metal	Single (Tinted)	Yes	1.02	0.4	N	18.0 ft²	2 ft 0 in	1 ft 6 in	None	None
___	3	NE	1	Metal	Single (Tinted)	Yes	1.02	0.4	N	18.8 ft²	2 ft 0 in	1 ft 6 in	None	None
___	4	NE	1	Metal	Single (Tinted)	Yes	1.02	0.4	N	9.2 ft²	2 ft 0 in	1 ft 6 in	None	None
___	5	SW	2	Metal	Single (Tinted)	Yes	1.02	0.4	N	36.0 ft²	2 ft 0 in	1 ft 6 in	None	None
___	6	SW	2	Metal	Single (Tinted)	Yes	1.02	0.4	N	18.8 ft²	2 ft 0 in	1 ft 6 in	None	None
___	7	SW	2	Metal	Single (Tinted)	Yes	1.02	0.4	N	6.7 ft²	2 ft 0 in	1 ft 6 in	None	None
___	8	SE	3	Metal	Single (Tinted)	Yes	1.02	0.4	N	13.1 ft²	2 ft 0 in	1 ft 6 in	None	None
___	9	SE	3	Metal	Single (Tinted)	Yes	1.02	0.4	N	10.0 ft²	2 ft 0 in	1 ft 6 in	None	None
___	10	SE	3	Metal	Single (Tinted)	Yes	1.02	0.4	N	18.8 ft²	2 ft 0 in	1 ft 6 in	None	None
___	11	SE	3	Metal	Single (Tinted)	Yes	1.02	0.4	N	4.7 ft²	2 ft 0 in	1 ft 6 in	None	None

GARAGE

√	#	Floor Area	Ceiling Area	Exposed Wall Perimeter	Avg. Wall Height	Exposed Wall Insulation
___	1	382.8 ft²	382.8 ft²	64 ft	8 ft	1

INFILTRATION

#	Scope	Method	SLA	CFM 50	ELA	EqLA	ACH	ACH 50
1	Wholehouse	Proposed ACH(50)	.000254	762	41.83	78.67	.1361	5

- **The Longer the Depth of the Overhang the more points you Loose.** (Less points is good)

- **The Longer the Separation distance the more points you Gain.** (More points is bad)

Remember

Windows on the first floor of a 2 story home gain no credit for an overhang on the second floor.

If the Separation Value is shown as 1 or 2 feet for a first floor window on a 2 story home Reject the calculation!

Conditioned floor area below grade (ft²)	0	

7. Windows(167.4 sqft.)	Description	Area
a. U-Factor:	Sgl, U=1.02	167.35 ft²
SHGC:	SHGC=0.40	
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:		2.000 ft.
Area Weighted Average SHGC:		0.400

8. Floor Types (640.0 sqft.)	Insulation	Area
a. Slab-On-Grade Edge Insulation	R=0.0	640.00 ft²
b. N/A	R=	ft²
c. N/A	R=	ft²

11. Ducts	R	ft³
a. Sup: Main, Ret: Main, AH: Garage	6	180

12. Cooling systems	kBtu/hr	Efficiency
a. Central Unit	29.0	SEER:16.00

13. Heating systems	kBtu/hr	Efficiency
a. Electric Strip Heat	17.0	COP:1.00

14. Hot water systems	
a. Electric	Cap: 50 gallons
	EF: 0.960
b. Conservation features	
None	
15. Credits	Pstat

Glass/Floor Area: 0.146

Total Proposed Modified Loads: 45.08

Total Baseline Loads: 53.41

PASS

I hereby certify that the plans and specifications covered by this calculation are in compliance with the Florida Energy Code.

PREPARED BY: [redacted]

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

GREAT SEAL OF THE STATE OF FLORIDA

Project Name:	[redacted]	Builder Name:	[redacted]
Street:		Permit Office:	
City, State, Zip:		Permit Number:	
Owner:		Jurisdiction:	
Design Location:		County:	Broward (Florida Climate Zone 1)

1. New construction or existing	New (From Plans)
2. Single family or multiple family	Single-family
3. Number of units, if multiple family	1
4. Number of Bedrooms	4
5. Is this a worst case?	Yes
6. Conditioned floor area above grade (ft²)	2308
Conditioned floor area below grade (ft²)	0

7. Windows(329.0 sqft.)	Description	Area
a. U-Factor:	Dbl, U=0.63	147.59 ft²
SHGC:	SHGC=0.25	
b. U-Factor:	Dbl, U=0.59	128.04 ft²
SHGC:	SHGC=0.33	
c. U-Factor:	Dbl, U=0.60	53.40 ft²
SHGC:	SHGC=0.33	
d. U-Factor:	N/A	ft²
SHGC:		
Area Weighted Average Overhang Depth:		6.015 ft.
Area Weighted Average SHGC:		0.294

8. Floor Types (1365.0 sqft.)	Insulation	Area
a. Slab-On-Grade Edge Insulation	R=0.0	1016.00 ft²
b. Floor over Garage	R=19.0	307.00 ft²
c. other (see details)	R=	42.00 ft²

9. Wall Types(3086.4 sqft.)	Insulation	Area
a. Concrete Block - Int Insul, Exterior	R=4.1	2865.90 ft²
b. Frame - Steel, Adjacent	R=11.0	166.50 ft²
c. Concrete Block - Int Insul, Adjacent	R=4.1	54.00 ft²
d. N/A	R=	ft²

10. Ceiling Types (1292.0 sqft.)	Insulation	Area
a. Under Attic (Vented)	R=30.0	1292.00 ft²
b. N/A	R=	ft²
c. N/A	R=	ft²

11. Ducts	R	ft²
a. Sup: Attic, Ret: AC1, AH: AC1	6	360

12. Cooling systems	kBtu/hr	Efficiency
a. Central Unit	38.6	SEER:14.00

13. Heating systems	kBtu/hr	Efficiency
a. Electric Strip Heat	24.0	COP:1.00

14. Hot water systems
a. Electric — Cap: 50 gallons, EF: 0.930
b. Conservation features: None

15. Credits: Pstat

Glass/Floor Area: 0.143

Total Proposed Modified Loads: 112.90
Total Baseline Loads: 117.48

PASS

I hereby certify that the plans and specifications covered by this calculation are in compliance with the Florida Energy Code.

PREPARED BY: [redacted]
DATE: _____

I hereby certify that this building, as designed, is in compliance with the Florida Energy C[redacted]

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.

GREAT SEAL OF THE STATE OF FLORIDA · IN GOD WE TRUST

BUILDING OFFICIAL: _____
DATE: _____

INPUT SUMMARY CHECKLIST REPORT

WINDOWS

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

	#	Ornt	Wall ID	Frame	Panes	NFRC	U-Factor	SHGC	Imp	Area	Overhang Depth	Overhang Separation	Int Shade	Sc
	1	SW=>S	4	Metal	Low-E Double	Yes	0.59	0.33	N	48.0 ft²	14 ft 0 in	1 ft 0 in	None	No
	2	SW=>S	7	Metal	Low-E Double	Yes	0.63	0.25	N	32.3 ft²	1 ft 0 in	2 ft 0 in	None	None
	3	NW=>W	9	Metal	Low-E Double	Yes	0.63	0.25	N	16.2 ft²	10 ft 0 in	1 ft 0 in	None	None
	4	SE=>E	10	Metal	Low-E Double	Yes	0.6	0.33	N	10.7 ft²	1 ft 0 in	12 ft 0 in	None	None
	5	NE=>N	12	Metal	Low-E Double	Yes	0.63	0.25	N	36.7 ft²	1 ft 0 in	1 ft 0 in	None	None
	6	NE=>N	14	Metal	Low-E Double	Yes	0.63	0.25	N	36.7 ft²	1 ft 0 in	2 ft 0 in	None	None
	7	NW=>W	16	Metal	Low-E Double	Yes	0.6	0.33	N	10.7 ft²	1 ft 0 in	1.3 ft 0 in	None	None
	8	NW=>W	17	Metal	Low-E Double	Yes	0.6	0.33	N	10.7 ft²	1 ft 0 in	1 ft 0 in	None	None
	9	NW=>W	18	Metal	Low-E Double	Yes	0.59	0.33	N	40.0 ft²	14 ft 0 in	1 ft 0 in	None	None
	10	SW=>S	20	Metal	Low-E Double	Yes	0.63	0.25	N	25.7 ft²	1 ft 0 in	1.3 ft 0 in	None	None
	11	NW=>W	21	Metal	Low-E Double	Yes	0.59	0.33	N	40.0 ft²	10 ft 0 in	1 ft 0 in	None	None
	12	SE=>E	23	Metal	Low-E Double	Yes	0.6	0.33	N	10.7 ft²	1 ft 0 in	1.3 ft 0 in	None	None
	13	SE=>E	25	Metal	Low-E Double	Yes	0.6	0.33	N	10.7 ft²	1 ft 0 in	1.3 ft 0 in	None	None

GARAGE

✓	#	Floor Area	Ceiling Area	Exposed Wall Perimeter	Avg. Wall Height	Exposed Wall Insulation
	1	397.001 ft²	397.001 ft²	64 ft	9.3 ft	1

INFILTRATION

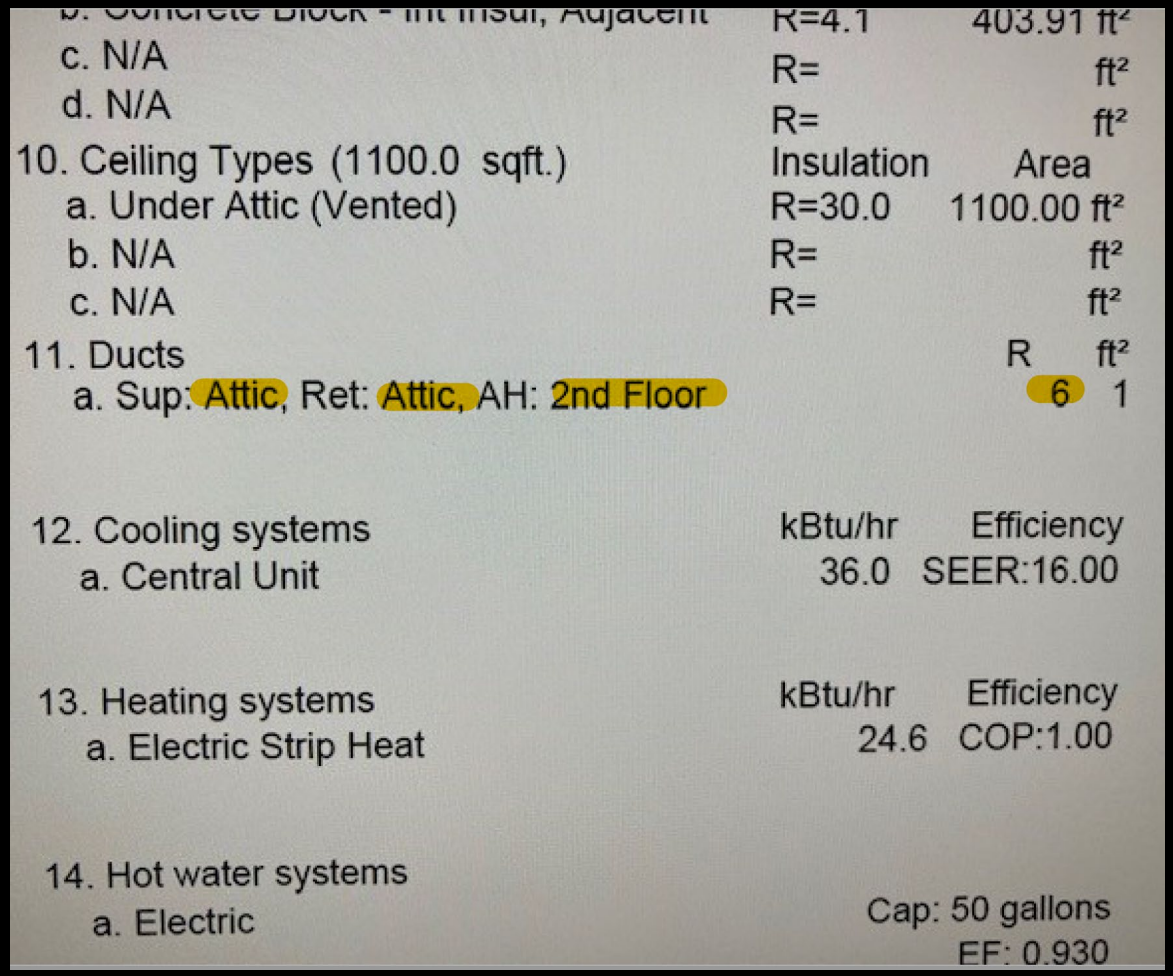
Scope	Method	SLA	CFM 50	ELA	EqLA	ACH	ACH 50
ehouse	Proposed ACH(50)	.000379	2294.7	125.97	236.91	.2215	6

HEATING SYSTEM

ystem Type	Subtype	Efficiency	Capacity

What do we look for in regard to ductwork?

- R-Value
- Location of ducts
- Location of Air Handler
- SQ Ft. Area of ductwork in Attic
- Leakage type chosen



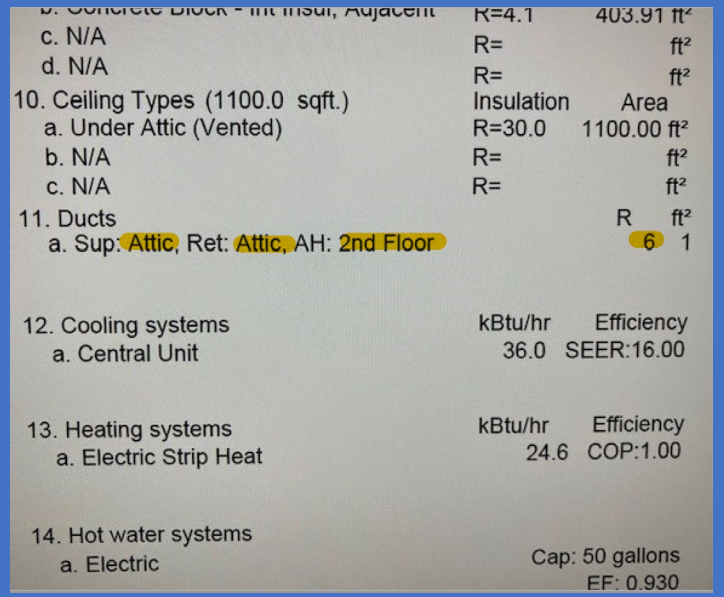
b. Concrete Block - Int Insul, Adjacent	R=4.1	403.91 ft²
c. N/A	R=	ft²
d. N/A	R=	ft²
10. Ceiling Types (1100.0 sqft.)	Insulation	Area
a. Under Attic (Vented)	R=30.0	1100.00 ft²
b. N/A	R=	ft²
c. N/A	R=	ft²
11. Ducts	R	ft²
a. Sup: Attic, Ret: Attic, AH: 2nd Floor	6	1
12. Cooling systems	kBtu/hr	Efficiency
a. Central Unit	36.0	SEER:16.00
13. Heating systems	kBtu/hr	Efficiency
a. Electric Strip Heat	24.6	COP:1.00
14. Hot water systems		
a. Electric		Cap: 50 gallons EF: 0.930

10. Ceiling Types (640.0 sqft.)	Insulation	Area
a. Under Attic (Vented)	R=30.0	640.00 ft²
b. N/A	R=	ft²
c. N/A	R=	ft²

11. Ducts	R	ft²
a. Sup: Main, Ret: Main, AH: Garage	6	180

12. Cooling systems	kBtu/hr	Efficiency
a. Central Unit	29.0	SEER:16.00

13. Heating systems	kBtu/hr	Efficiency
a. Electric Strip Heat	17.0	COP:1.00



b. Concrete Block - Int Insul, Adjacent	R=4.1	403.91 ft²
c. N/A	R=	ft²
d. N/A	R=	ft²
10. Ceiling Types (1100.0 sqft.)	Insulation	Area
a. Under Attic (Vented)	R=30.0	1100.00 ft²
b. N/A	R=	ft²
c. N/A	R=	ft²
11. Ducts		R ft²
a. Sup: Attic, Ret: Attic, AH: 2nd Floor		6 1
12. Cooling systems	kBtu/hr	Efficiency
a. Central Unit	36.0	SEER:16.00
13. Heating systems	kBtu/hr	Efficiency
a. Electric Strip Heat	24.6	COP:1.00
14. Hot water systems		
a. Electric	Cap: 50 gallons	EF: 0.930

10. Ceiling Types (640.0 sqft.)	Insulation	Area
a. Under Attic (Vented)	R=30.0	640.00 ft²
b. N/A	R=	ft²
c. N/A	R=	ft²
11. Ducts		R ft²
a. Sup: Main, Ret: Main, AH: Garage		6 180
12. Cooling systems	kBtu/hr	Efficiency
a. Central Unit	29.0	SEER:16.00
13. Heating systems	kBtu/hr	Efficiency
a. Electric Strip Heat	17.0	COP:1.00

10. Wall Type(1557.4 sqft.)	Insulation	Area
a. Concrete Block - Int Insul, Exterior	R=6.0	1404.40 ft²
b. Frame - Wood, Adjacent	R=13.0	153.00 ft²
c. N/A	R=	ft²
d. N/A	R=	ft²
11. Ceiling Types (2000.0 sqft.)	Insulation	Area
a. Under Attic (Vented)	R=38.0	2000.00 ft²
b. N/A	R=	ft²
c. N/A	R=	ft²
12. Ducts		R ft²
a. Sup: Attic, Ret: Attic, AH: Main		8 400

13. Cooling systems	kBtu/hr	Efficiency
a. Central Unit	19.5	SEER:14.00

14. Heating systems	kBtu/hr	Efficiency
a. Electric Heat Pump	19.5	HSPF:8.20

15. Hot water systems	
a. Electric	Cap: 50 gallons
	EF: 0.945
b. Conservation features	
None	
16. Credits	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	HVAC # Cool
_____	1	Attic	6	804 ft²	Entry	804 ft²	Default Leakage	AC	(Default)	(Default)			1	1

TEMPERATURES

Programable Thermostat: Y

Ceiling Fans:

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Cooling	[ ]	[ ]	[ ]	[ ]	[ ]	[X]	[X]	[X]	[X]	[ ]	[ ]	[ ]
Heating	[X]	[X]	[X]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[X]	[X]
Venting	[ ]	[ ]	[X]	[X]	[ ]	[ ]	[ ]	[ ]	[ ]	[X]	[X]	[ ]

Duct Testing

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

_____ (Total of all systems) ÷ 2000 (Total Conditioned Square Footage) = _____ Qn

☐ **PASS** ☐ **FAIL**

○ **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 ($Q_n \leq 0.04$) ☐ NO ($Q_n \leq 0.03$)

○ **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

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: _____

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

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

R405.2.3 Duct air leakage testing. In cases where duct air leakage lower than the default Q_n to outside of 0.080 (where Q_n = duct leakage to the outside in cfm per 100 square feet of conditioned floor area tested at 25 Pascals) is specified for the *proposed design*, testing in accordance with Section R403.3.2 shall verify a duct air leakage rate not exceeding the leakage rate of the *proposed design*. Otherwise, in accordance with Section R403.3.3, duct testing is not mandatory for buildings complying by Section R405.

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	200.00 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.**

Default Leakage equals 8%

Leak Free equals 3%

When the designer chooses “Default Leakage” a duct test is not required

When the designer chooses “Leak Free”

A duct test is Required

FORM R405-2017

INPUT SUMMARY CHECKLIST REPORT

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	HVAC # Cool
_____	1	Attic	6	360 ft²	AC1	60 ft²	Default Leakage	AC1	(Default)	(Default)			1	1

TEMPERATURES

Programable Thermostat: Y

Ceiling Fans:

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

Thermal Envelope and Air Barrier

R103.2.1 Building thermal envelope depiction. The *building's thermal envelope* shall be represented on the construction documents.

Why is it important to show the location of the thermal envelope?

Why is it important to show the location of the thermal envelope?

1) It is in the code -----R103.2.1
2)

Why is it important to show the location of the thermal envelope?

1) It is in the code -----R103.2.1
2) Without it, You do not know where to insulate the building
3)

Why is it important to show the location of the thermal envelope?

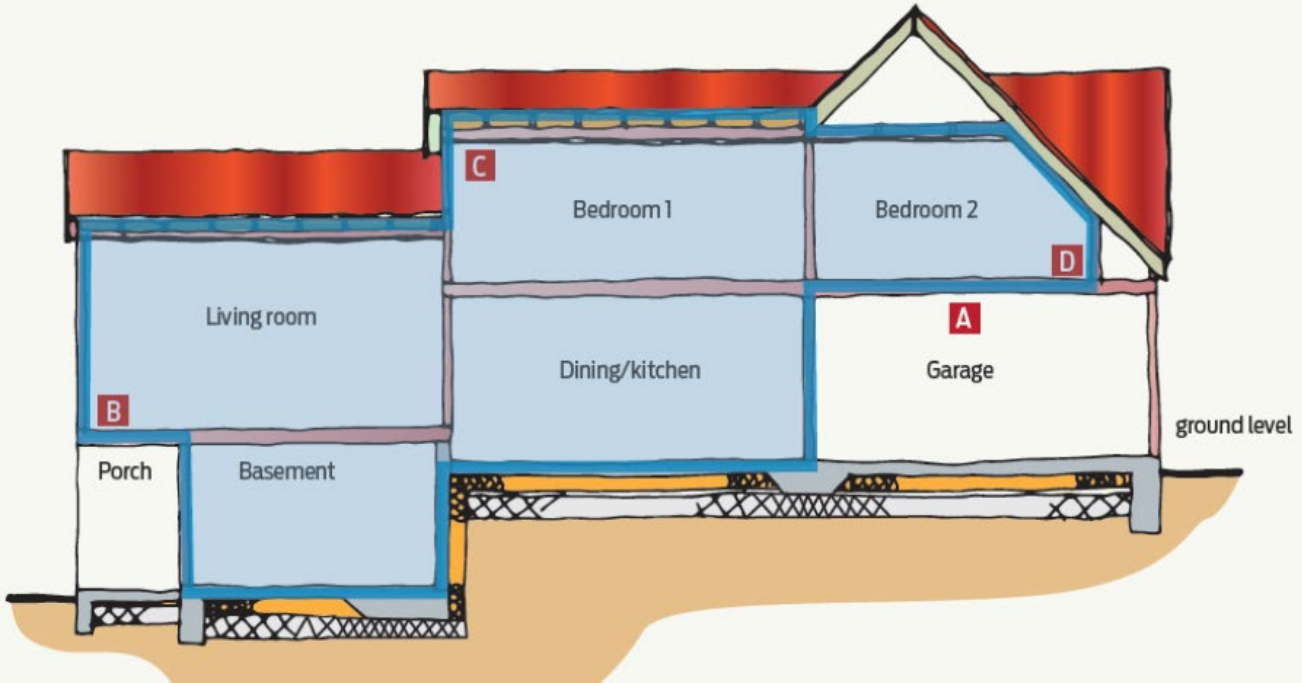
1) It is in the code -----R103.2.1
2) Without it, You do not know where to insulate the building
3) The ductwork must be inside the thermal envelope to allow a lower R-Value and gain to credit on the Energy Calculation

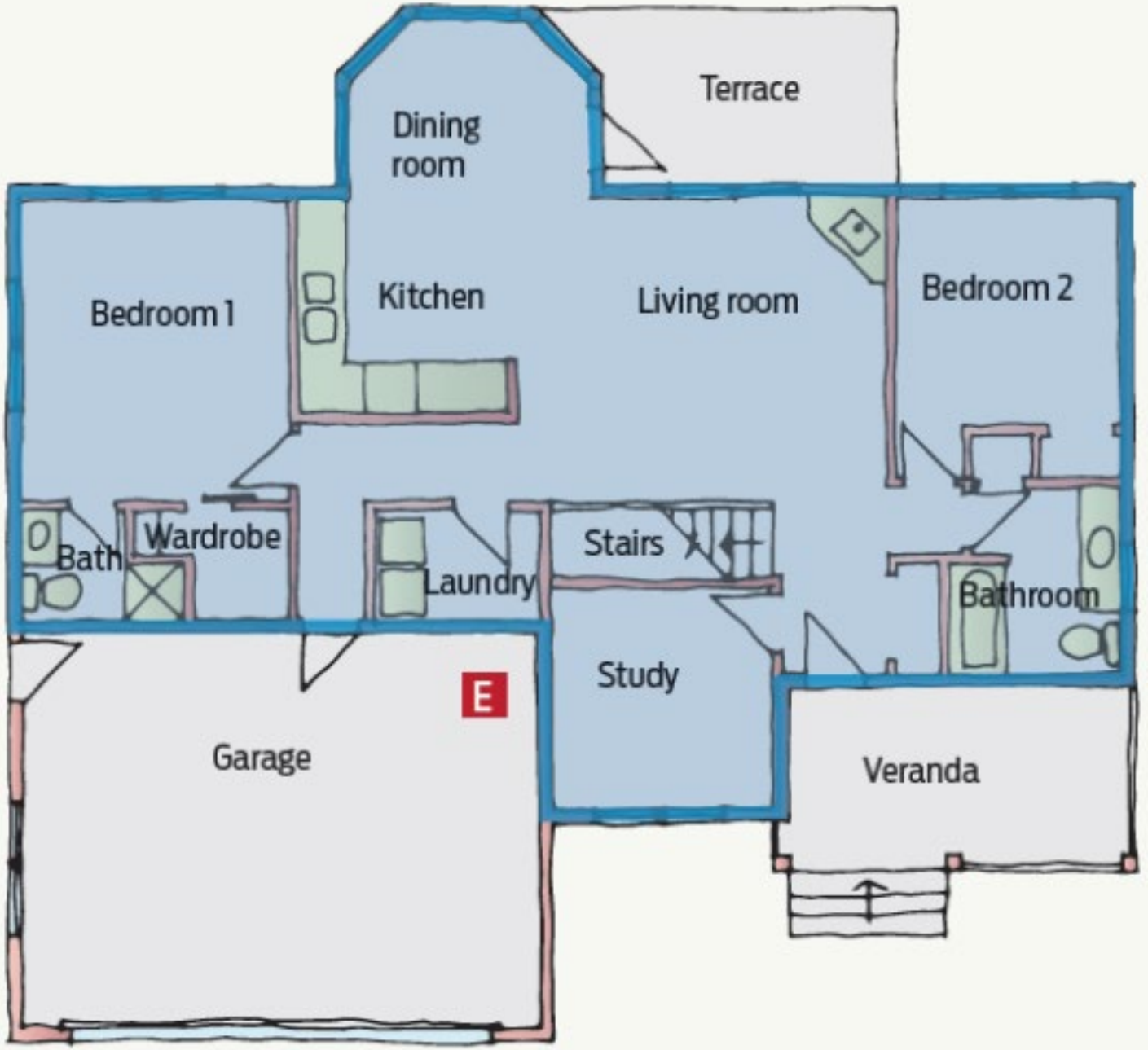
R405.2

All supply and return ducts not completely inside the building thermal envelope shall be insulated to a minimum of R-6

Thermal envelope basics

What areas of a dwelling should be contained within a thermal envelope and what areas shouldn't? Let's review.




Terrace
Dining room
Bedroom 1
Kitchen
Living room
Bedroom 2
Bath
Wardrobe
Laundry
Stairs
Bathroom
Study
E
Garage
Veranda

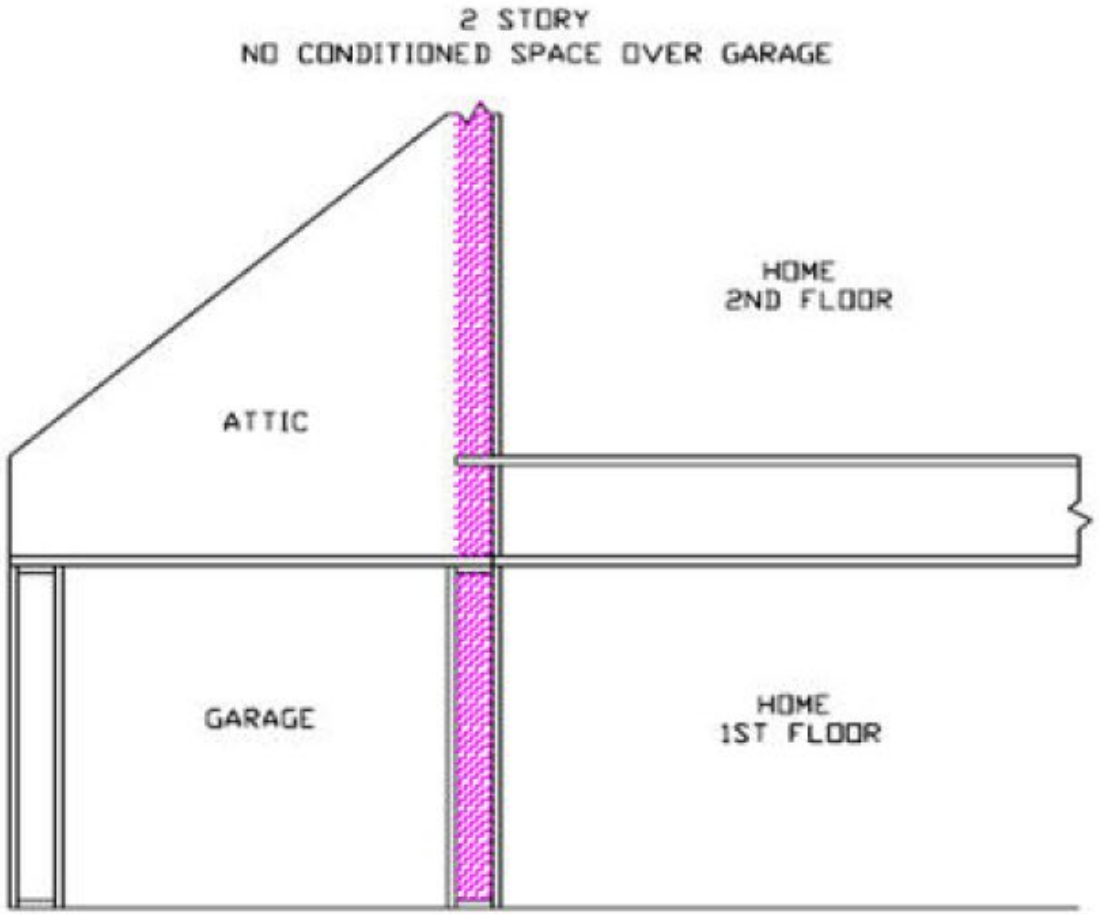


FIGURE 1

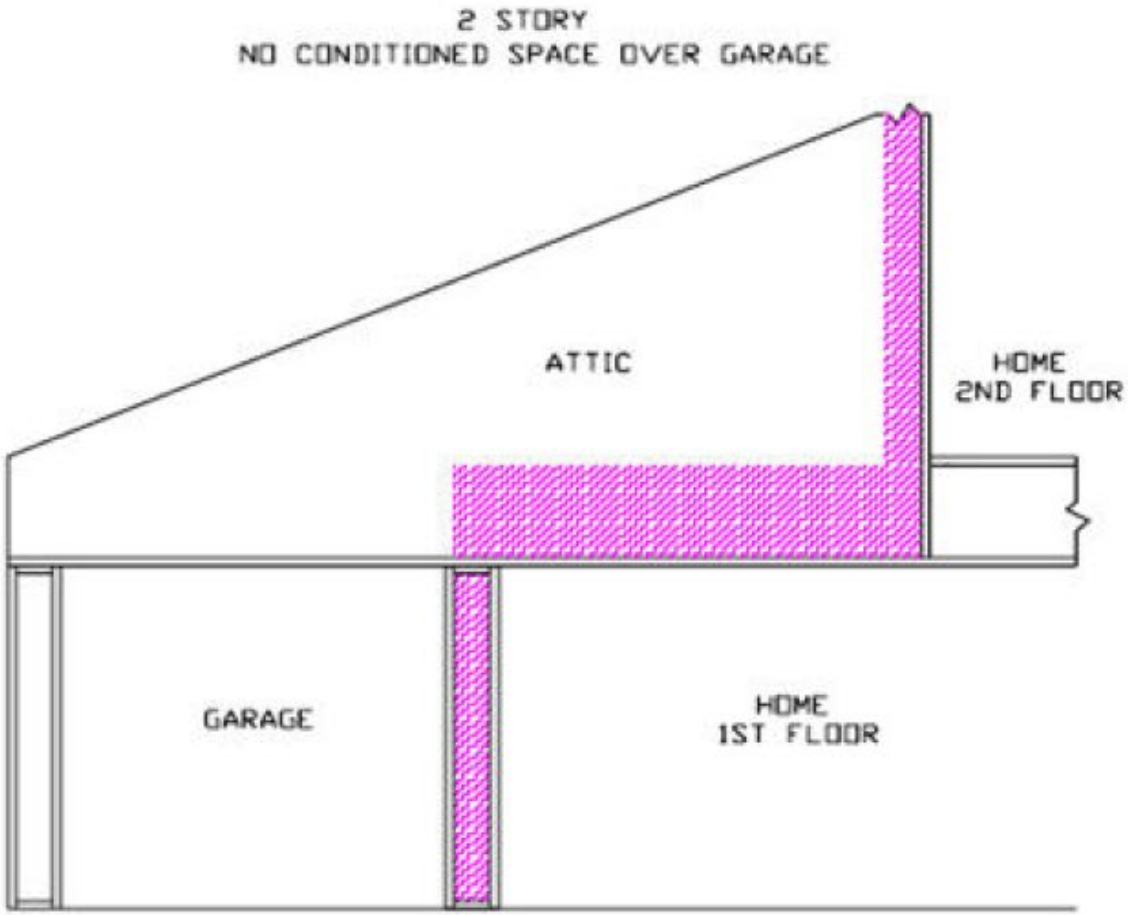


FIGURE 2

2 STORY CONDITIONED SPACE OVER GARAGE
GARAGE & RIM JOISTS INSULATED

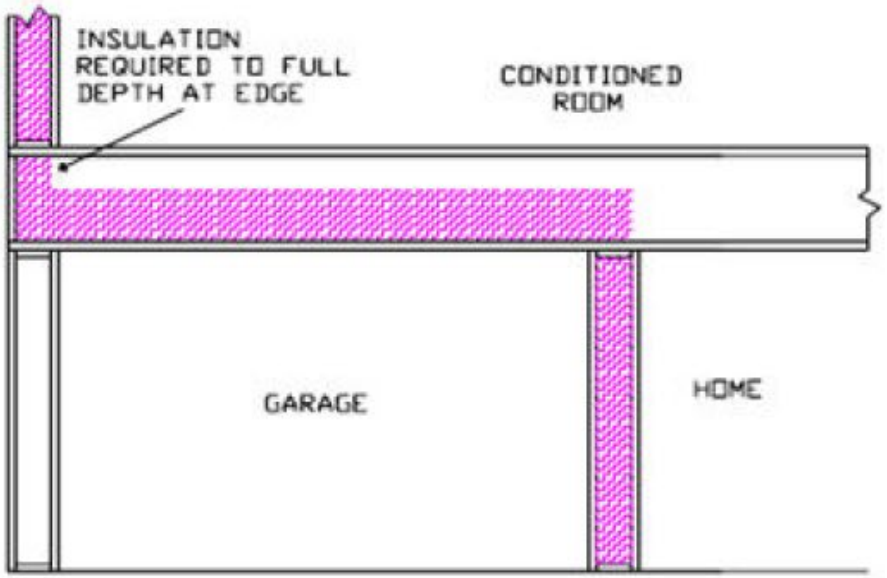


FIGURE 3

2 STORY CONDITIONED SPACE OVER GARAGE
SUBFLOOR & GARAGE TO HOME TRANSITION
AIR BARRIER & INSULATED

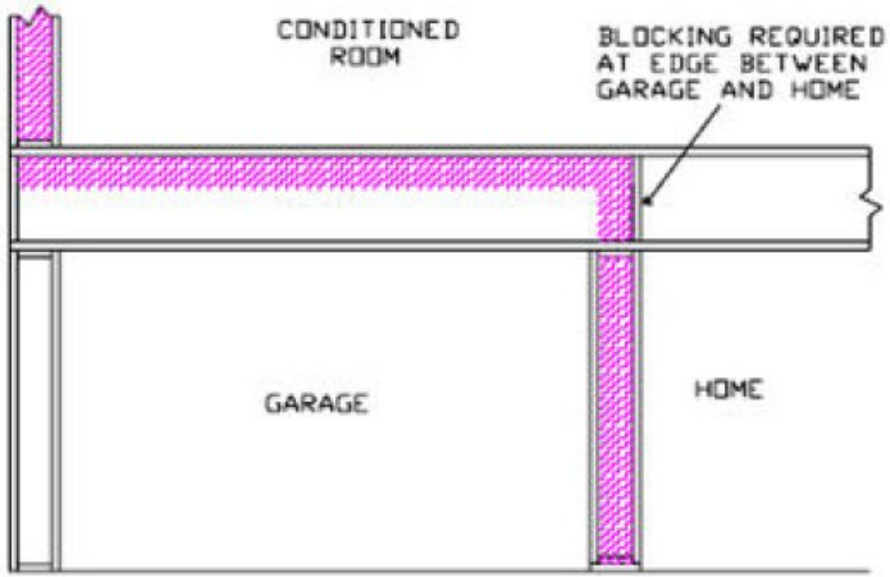


FIGURE 4


Fi-FOIL COMPANY
AA2 Vapor Shield™
Reflective Insulation
PERFORATED (HI-PERM)
R-4.1
R-4.6
R-5.1
Fifoil.com/aa2


FI-FOIL
SPARTA

Insulation on Exterior Walls

Fi-FOIL COMPANY | AA2 Shield | M Shield | VR Plus

Masonry Wall Installation Sheet

Reflective Insulation

INSTALLATION TIPS

SPLICES

For splices in wall cavities, either overlap the material to complete the cavity or cut the insulation square and carefully butt the two pieces together to minimize any break in the insulation for that cavity. Tape the seam if the wall can be seen.

WALL OUTLETS

Cut the insulation so that it fits snuggly around the outlet. If the wall can be seen, tape the edge of the insulation to the box.

NOTES

Tape any tears in material.

Refer to ASTM C727 & C1224, Standard Practice for Installation and Use of Reflective Insulation in Building Constructions, for other installation considerations.

Proper Storage:
Store insulation material in a dry covered facility away from temperature extremes and weather elements.

Handling:
Protect material during handling and installation to prevent damage

Re-Installation:
Re-installation of the product is not covered by the product warranty.

WALLS FURRED 16" & 24" ON CENTER

Tools Needed

1. Grasp one side of the insulation with the printed side facing the applicator (aluminum foil toward the masonry).
2. Begin stapling at the top of the furring strip on one side only until completed to the length of the panel. Staple approximately every 4" to 8".
3. Cut off the insulation leaving enough length to overlap bottom horizontal furring strip.
4. Start again at the top. Grasp the staple tab on the opposite side and pull slightly to expand the material. Staple to the other furring strip. Use this procedure the entire length of the wall, stapling approximately every 4" to 8".
5. Staple the top and bottom horizontal furring strips (if present) approximately every 4" to 8".

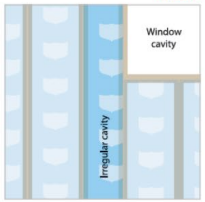
NOTE
Where horizontal furring strips are present (for example over and under windows), the material can be installed horizontally using the installation guidelines above.

For metal furring strips, wipe down the metal, then use the Tape Tab Version, or attach to the metal furring with double-sided tape or spray adhesive. Proceed using the same basic procedure as above. This will hold the insulation in place until the wall board is applied.

Diagram A

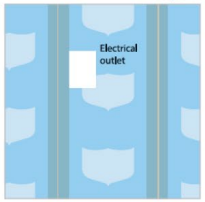
Material can be installed horizontally on horizontal framing only.

Diagram B



24" wide insulation can be used for cavities greater than 16" on center.

Diagram C



Cut insulation to fit snuggly around outlets and other cutouts. Tape if wall is visible.

IRREGULAR CAVITIES

Cavities that are less than the standard widths:

1. Complete items 1, 2, & 3 above.
2. Start again at the top. Grasp the other side of the insulation and pull over the top of the furring strip. Use this procedure the entire length of the wall; pull and staple approximately every 4" to 8". The excess material shall be trimmed or the over-lap must be to the outside of the adjacent installed cavity. When there is a splice in the wall cavity, the reflective insulation seam shall be butted, over-lapped or taped so the wall is not visible.

Cavities that are wider than the standard widths:
If the cavity is wider than 24", install another furring strip. If the cavity is wider than 16" O.C., use 24" wide material using the steps above.

Air Barriers

Residential and Commercial

Residential Table 402.4.1.1
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.

C402.5.1 Air barriers. A continuous air barrier shall be provided throughout the building thermal envelope. The air barriers shall be permitted to be located on the inside or outside of the building envelope, located within the assemblies composing the envelope, or any combination thereof. The air barrier shall comply with Sections C402.5.1.1 and C402.5.1.2.

Exception: Air barriers are not required in buildings located in *Climate Zone* 2B.

C402.5.1.1 Air barrier construction. The *continuous air barrier* shall be constructed to comply with the following:

1. The air barrier shall be continuous for all assemblies that are the thermal envelope of the building and across the joints and assemblies.
2. Air barrier joints and seams shall be sealed, including sealing transitions in places and changes in materials. The joints and seals shall be securely installed in or on the joint for its entire length so as not to dislodge, loosen or otherwise impair its ability to resist positive and negative
3. Penetrations of the air barrier shall be caulked, gasketed or otherwise sealed in a manner compatible with the construction materials and location. Joints and seals associated with penetrations shall be sealed in the same manner or taped or covered with moisture vapor-permeable wrapping material. Sealing materials shall be appropriate to the construction materials being sealed and shall be securely installed around the

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.

TABLE R402.4.1.1
AIR BARRIER AND INSULATION INSTALLATION[a]

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 space.
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 subfloor, wall covering or ceiling penetrated by the boot.	
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.

Is a Drop Tile Ceiling an Air Barrier?

NO!

Definitions
C202

AIR BARRIER. Relating to air distribution systems, a material object(s) that impedes or restricts the free movement of air under specified conditions. For fibrous glass duct, the air barrier is its foil cladding; for flexible nonmetal duct, the air barrier is the nonporous core; and for sheet metal duct and air handling units, the air barrier is the metal in contact with the air stream.
For mechanical closets, the air barrier may be a uniform panelized material such as gypsum wallboard that meets ASTM C36, or it may be a membrane that alone acts as an air barrier that is attached to a panel, such as the foil cladding of fibrous glass duct board.
Relating to the building envelope, air barriers comprise the planes of primary resistance to airflow between the interior spaces of a building and the outdoors and the planes of primary airflow resistance between adjacent air zones of a building, including planes between adjacent conditioned and unconditioned air spaces of a building.
To be classed as an air barrier, a building plane must be substantially leak free; that is, it shall have an air leakage rate not greater than 0.5 cfm/ft2 when subjected to an air pressure gradient of 25 pascal. In general, air barriers are made of durable, nonporous materials and are sealed to adjoining wall, ceiling, or floor surfaces with a suitable long-life mastic. House wraps and taped and sealed drywall may constitute an air barrier, **but dropped acoustical tile ceilings (T-bar ceilings) may not. Batt insulation facings and asphalt-impregnated fiberboard and felt paper are not considered air barriers.**

Blower Door Testing Questions??

- What is the Maximum ACH for a New Home?
- What is the Minimum ACH for a New Home?

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: [illegible]45

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

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

☐ **PASS**

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

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

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

- Who checks the box saying whole house ventilation is required?
- Who is responsible for the test report form being correct?
- Who selects whether the home is tested under the prescriptive or the performance method?

Envelope Leakage Test Report (Blower Door Test)

Residential Prescriptive, Performance or ERI Method Compliance
2017 Florida Building Code, Energy Conservation, 6th Edition

Jurisdiction: N/A	Permit #: N/A

Job Information

Builder: [redacted] Community: [redacted]

Address: [redacted] Unit: [redacted]

City: [redacted] State: FL Zip: [redacted]

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 R405-2017 (Performance) or R406-2017 (ERI), section labeled as Infiltration, sub-section ACH.

ACH(50) specified on Form R405-2017-Energy Calc (Performance) or R406-2017 (ERI): [redacted]

3,809 (CFM(50)) x 60 ÷ 51,053.2 (Building Volume) = 4.47 (ACH(50))

☑ **PASS** ☐ **FAIL**

☐ 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

Testing. Testing shall be conducted in accordance with ANSI/RESNET/ICC 380 and reported at a pressure or 0.2 inche 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*.

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2. Dampers including exhaust, intake, makeup air, back draft and flue dampers shall be closed, but not sealed beyond intended infiltration control measures.
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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: [redacted] Phone: [redacted]

I hereby verify that the above Air Leakage results are in accordance with the 2017 6th Edition Florida Building Code Energy Conservation requirements according to the compliance method selected above.

Signature of Tester: [redacted] Date of Test: [redacted]

Printed Name of Tester: [redacted]

License/Certification #: [redacted] Issuing Authority: _____

Project Name:	[redacted]	Builder Name:	[redacted]
Street:		Permit Office:	
City, State, Zip:	, FL ,	Permit Number:	
Owner:	[redacted]	Jurisdiction:	
Design Location:	FL, Fort Lauderdale	County:	Broward (Florida Climate Zone 1)

CITY COPY

RECEIVED
OCT 28 2019
BUILDING DIVISION

1. New construction or existing	New (From Plans)
2. Single family or multiple family	Single-family
3. Number of units, if multiple family	1
4. Number of Bedrooms	4
5. Is this a worst case?	Yes
6. Conditioned floor area above grade (ft²)	4764
Conditioned floor area below grade (ft²)	0

7. Windows(679.0 sqft.)	Description	Area
a. U-Factor:	Sgl, U=1.07	679.00 ft²
SHGC:	SHGC=0.23	
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:		1.000 ft.
Area Weighted Average SHGC:		0.230

8. Floor Types (2826.0 sqft.)	Insulation	Area
a. Slab-On-Grade Edge Insulation	R=0.0	2367.00 ft²
b. Raised Floor	R=19.0	459.00 ft²
c. N/A	R=	ft²

9. Wall Types (5765.0 sqft.)	Insulation	Area
a. Concrete Block - Int Insul, Exterior	R=4.1	5285.00 ft²
b. Frame - Steel, Adjacent	R=11.0	480.00 ft²
c. N/A	R=	ft²
d. N/A	R=	ft²

10. Ceiling Types (2803.0 sqft.)	Insulation	Area
a. Under Attic (Vented)	R=30.0	2803.00 ft²
b. N/A	R=	ft²
c. N/A	R=	ft²

11. Ducts	R	ft²
a. Sup: Living areas, Ret: Living areas, AH: Living ar	6	302
b. Sup: Attic, Ret: Attic, AH: Bedroom areas	6	302

12. Cooling systems	kBtu/hr	Efficiency
a. Central Unit	51.9	SEER:14.00
b. Central Unit	51.9	SEER:14.00

13. Heating systems	kBtu/hr	Efficiency
a. Electric Strip Heat	24.5	COP:1.00
b. Electric Strip Heat	24.5	COP:1.00

14. Hot water systems
a. Natural Gas — Cap: 75 gallons, EF: 0.590
b. Conservation features: None

15. Credits: Pstat

Glass/Floor Area: 0.143

Total Proposed Modified Loads: 172.22
Total Baseline Loads: 205.36

PASS

I hereby certify that the plans and specifications covered by this calculation are [redacted] with the Florida Energy Code.

PREPARED BY: [redacted]
DATE: OCT 2[illegible] 2019

I hereby certify that t[redacted]as designed, is in compliance with the Florida Ener[redacted]

OWNER/AGENT: [redacted]
DATE: OCT 24 2019

REGISTERED ARCHITECT

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.

GREAT SEAL OF THE STATE OF FLORIDA — IN GOD WE TRUST

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 3.00 ACH50 (R402.4.1.2).**

APPROVED

FORM R405-2017

INPUT SUMMARY CHECKLIST REPORT

CEILING

√	#	Ceiling Type	Space	R-Value	Ins Type	Area	Framing Frac	Truss Type
	1	Under Attic (Vented)	Living areas	30	Blown	271 ft²	0.11	Wood
	2	Under Attic (Vented)	Bedroom areas	30	Blown	2532 ft²	0.11	Wood

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	N=>SW	Exterior	Concrete Block - Int Insul	Living areas	4.0999	72.6		10		726.0 ft²		0	0.300000	0
	2	E=>NW	Exterior	Concrete Block - Int Insul	Living areas	4.0999	80.5		10		805.0 ft²		0	0.300000	0
	3	S=>NE	Exterior	Concrete Block - Int Insul	Living areas	4.0999	35		10		350.0 ft²		0	0.300000	0
	4	W=>SE	Exterior	Concrete Block - Int Insul	Living areas	4.0999	78.9		10		789.0 ft²		0	0.300000	0
	5	N=>SW	Garage	Frame - Steel	Living areas	11	48		10		480.0 ft²		0.18	0.300000	0
	6	N=>SW	Exterior	Concrete Block - Int Insul	Bedroom are	4.1	45.1		10		451.0 ft²		0	0.300000	0
	7	E=>NW	Exterior	Concrete Block - Int Insul	Bedroom are	4.1	82.8		10		828.0 ft²		0	0.300000	0
	8	S=>NE	Exterior	Concrete Block - Int Insul	Bedroom are	4.1	60.3		10		603.0 ft²		0	0.300000	0
	9	W=>SE	Exterior	Concrete Block - Int Insul	Bedroom are	4.1	73.3		10		733.0 ft²		0	0.300000	0

DOORS

√	#	Ornt	Door Type	Space	Storms	U-Value	Width Ft	Width In	Height Ft	Height In	Area
	1	S=>NE	Wood	Living areas	None	.46	3		8		24 ft²
	2	N=>SW	Wood	Living areas	None	.46	3		7		21 ft²

WINDOWS

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

√	#	Ornt	Wall ID	Frame	Panes	NFRC	U-Factor	SHGC	Imp	Area	Overhang Depth	Overhang Separation	Int Shade	Screening
	1	N=>SW	1	Metal	Low-E Single	Yes	1.07	0.23	N	196.0 ft²	1 ft 0 in	1 ft 0 in	Roller shade	None
	2	S=>NE	3	Metal	Low-E Single	Yes	1.07	0.23	N	52.0 ft²	1 ft 0 in	1 ft 0 in	Roller shade	None
	3	W=>SE	4	Metal	Low-E Single	Yes	1.07	0.23	N	198.0 ft²	1 ft 0 in	1 ft 0 in	Roller shade	None
	4	N=>SW	6	Metal	Low-E Single	Yes	1.07	0.23	N	78.0 ft²	1 ft 0 in	1 ft 0 in	Roller shade	None
	5	S=>NE	8	Metal	Low-E Single	Yes	1.07	0.23	N	131.0 ft²	1 ft 0 in	1 ft 0 in	Roller shade	None
	6	W=>SE	9	Metal	Low-E Single	Yes	1.07	0.23	N	24.0 ft²	1 ft 0 in	1 ft 0 in	Roller shade	None

GARAGE

√	#	Floor Area	Ceiling Area	Exposed Wall Perimeter	Avg. Wall Height	Exposed Wall Insulation
	1	546 ft²	546 ft²	1 ft	10 ft	1

INFILTRATION

#	Scope	Method	SLA	CFM 50	ELA	EqLA	ACH	ACH 50
1	Wholehouse	Proposed ACH(50)	.000204	2552.7	140.14	263.55	.123	3

FORM R405-2017

FLORIDA ENERGY EFFICIENCY CODE FOR BUILDING CONSTRUCTION

Florida Department of Business and Professional Regulation - Residential Performance Method

Project Name: [redacted]
Street:
City, State, Zip:
Owner:
Design Location:

Builder Name: [redacted]
Permit Office:
Permit Number:
Jurisdiction:
County: Broward (Florida Climate Zone 1)

1. New construction or existing	New (From Plans)
2. Single family or multiple family	Single-family
3. Number of units, if multiple family	1
4. Number of Bedrooms	4
5. Is this a worst case?	Yes
6. Conditioned floor area above grade (ft²)	2308
Conditioned floor area below grade (ft²)	0

7. Windows(329.0 sqft.)	Description	Area
a. U-Factor:	Dbl, U=0.63	147.59 ft²
SHGC:	SHGC=0.25	
b. U-Factor:	Dbl, U=0.59	128.04 ft²
SHGC:	SHGC=0.33	
c. U-Factor:	Dbl, U=0.60	53.40 ft²
SHGC:	SHGC=0.33	
d. U-Factor:	N/A	ft²
SHGC:		

Area Weighted Average Overhang Depth: 6.015 ft.
Area Weighted Average SHGC: 0.294

8. Floor Types (1365.0 sqft.)	Insulation	Area
a. Slab-On-Grade Edge Insulation	R=0.0	1016.00 ft²
b. Floor over Garage	R=19.0	307.00 ft²
c. other (see details)	R=	42.00 ft²

9. Wall Types(3086.4 sqft.)	Insulation	Area
a. Concrete Block - Int Insul, Exterior	R=4.1	2865.90 ft²
b. Frame - Steel, Adjacent	R=11.0	166.50 ft²
c. Concrete Block - Int Insul, Adjacent	R=4.1	54.00 ft²
d. N/A	R=	ft²

10. Ceiling Types (1292.0 sqft.)	Insulation	Area
a. Under Attic (Vented)	R=30.0	1292.00 ft²
b. N/A	R=	ft²
c. N/A	R=	ft²

11. Ducts	R	ft²
a. Sup: Attic, Ret: AC1, AH: AC1	6	360

12. Cooling systems	kBtu/hr	Efficiency
a. Central Unit	38.6	SEER:14.00

13. Heating systems	kBtu/hr	Efficiency
a. Electric Strip Heat	24.0	COP:1.00

14. Hot water systems
a. Electric — Cap: 50 gallons, EF: 0.930
b. Conservation features
None

15. Credits — Pstat

Glass/Floor Area: 0.143

Total Proposed Modified Loads: 112.90
Total Baseline Loads: 117.48

PASS

I hereby certify that the plans and specifications covered by this calculation are in compliance with the Florida Energy Code.

PREPARED BY: [redacted]
DATE: _____

I hereby certify that this building, as designed, is in compliance with the Florida Energy C[redacted]

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 6.00 ACH50 (R402.4.1.2).**

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%
___	13	W	Garage	Concrete Block - Int Insul	Laundry Roo	3	5	6	8		44.0 ft²		0	0.75	0
___	14	W	Garage	Concrete Block - Int Insul	Kitchen	3	6		8		48.0 ft²		0	0.75	0
___	15	N	Garage	Concrete Block - Int Insul	Living Room	3	14		8		112.0 ft²		0	0.75	0

DOORS

√	#	Ornt	Door Type	Space	Storms	U-Value	Width Ft	Width In	Height Ft	Height In	Area
_____	1	W	Insulated	Living Room	Metal	.2	3		7		21 ft²
_____	2	W	Wood	Laundry Roo	None	.46	3		7		21 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	E	1	Metal	Single (Tinted)	Yes	1.11	0.39	Y	19.3 ft²	1 ft 6 in	0 ft 10 in	None	Exterior 1
_____	2	S	2	Metal	Single (Tinted)	Yes	1.11	0.39	Y	19.3 ft²	1 ft 6 in	2 ft 6 in	None	Exterior 1
_____	3	W	3	Metal	Single (Tinted)	Yes	1.11	0.39	Y	19.3 ft²	1 ft 6 in	0 ft 10 in	None	Exterior 1
_____	4	S	4	Metal	Single (Tinted)	Yes	1.11	0.39	Y	19.3 ft²	1 ft 6 in	2 ft 6 in	None	Exterior 1
_____	5	W	5	Metal	Single (Tinted)	Yes	1.11	0.39	Y	19.3 ft²	1 ft 6 in	0 ft 10 in	None	Exterior 1
_____	6	E	6	Metal	Single (Tinted)	Yes	1	0.47	Y	54.0 ft²	10 ft 0 in	0 ft 10 in	None	Exterior 1
_____	7	W	7	Metal	Single (Tinted)	Yes	1.11	0.39	Y	47.4 ft²	1 ft 6 in	0 ft 10 in	None	Exterior 1
_____	8	E	8	Metal	Single (Tinted)	Yes	1.11	0.39	Y	9.0 ft²	1 ft 6 in	0 ft 10 in	None	Exterior 1
_____	9	N	9	Metal	Single (Tinted)	Yes	1.11	0.39	Y	10.0 ft²	1 ft 6 in	2 ft 4 in	None	Exterior 1
_____	10	E	10	Metal	Single (Tinted)	Yes	1.11	0.39	Y	6.3 ft²	1 ft 6 in	0 ft 10 in	None	Exterior 1
_____	11	E	11	Metal	Single (Tinted)	Yes	1.11	0.39	Y	6.3 ft²	1 ft 6 in	0 ft 10 in	None	Exterior 1

GARAGE

√	#	Floor Area	Ceiling Area	Exposed Wall Perimeter	Avg. Wall Height	Exposed Wall Insulation
_____	1	231 ft²	231 ft²	32 ft	8 ft	1

INFILTRATION

#	Scope	Method	SLA	CFM 50	ELA	EqLA	ACH	ACH 50
1	Wholehouse	Proposed ACH(50)	.000254	810.7	44.48	83.5	.1057	5

HEATING SYSTEM

√	#	System Type	Subtype	Speed	Efficiency	Capacity	Block	Ducts
_____	1	Electric Strip Heat/	None		COP:1	18.8 kBtu/hr	1	sys#1

Summary

- The designer of record determines the energy compliance path per R401.2 and provides a compliance report that is either Performance, Prescriptive or ERI method.
- When filling out the Envelope Leakage Test report, the method which the designer chose must be selected. The testing agency or contractor cannot choose a different method of compliance than the designer.
- The statement on the form giving these options do not apply to the tester or the contractor to select. It applies to the designer who prepared the compliance document. This selection by the designer also applies to the duct testing leakage rate.
- The code was changed in this 2020 cycle to make sure that if the designer chose the performance method of compliance, the leakage rate that he/she chose was not exceeded.
- The software places the rate in the box provided and the software is being updated to select the correct method of compliance.
- The code official is responsible to review both the Envelope Leakage Test Report and the Duct Leakage Test Report to make sure the proposed design is met and that the reports are accurate and without errors.

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: 1-14-2021

MEMORANDUM

From: Timothy G de Carion

To: All Broward County Mechanical Chiefs

Subject: Blower Door Test Report Review

It has come to my attention that "Mechanical Final Inspections" are being approved without the blower door test report first being reviewed and approved by the code official. Please note that according to of the Florida Energy Conservation Code:

FBC-Energy-R402.4.1.2-Testing
"A written report of the results of the test shall be signed by the party conducting the test and provided to the code official."

Blower Door Test Reports are to be submitted to the building department for review and approval to determine:

1) Per **FBC-Residential 303.4** for ventilation rates under three (3ACH), the home requires additional ventilation.
2) The home does not exceed the selected design ACH shown on the approved Energy compliance report R405-2020 or if it requires a revised Energy compliance report per **FBC-Energy-R103.4**
3) Per **FBC-Energy-R402.4.1.2 Testing** for ventilation rates exceeding seven (7 ACH), the home requires modifications to reduce the air leakage.

No mechanical or building final inspection is to be approved unless the blower door test report is approved by the code official.

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

What about the Credits?

FORM R405-2020

FLORIDA ENERGY EFFICIENCY CODE FOR BUILDING CONSTRUCTION

Florida Department of Business and Professional Regulation - Residential Performance Method

Project Name:	Example Home	Builder Name:	Owner
Street:	1 N University Dr.	Permit Office:	
City, State, Zip:	Fort Lauderdale , FL , 33324	Permit Number:	
Owner:		Jurisdiction:	Miami
Design Location:	FL, Fort Lauderdale	County:	Broward (Florida Climate Zone 1)

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)	1216		
Conditioned floor area below grade (ft²)	0		
7. Windows(229.2 sqft.)	Description		Area
a. U-Factor:	Sgl, U=1.11		175.18 ft²
SHGC:	SHGC=0.39		
b. U-Factor:	Sgl, U=1.00		54.00 ft²
SHGC:	SHGC=0.47		
c. U-Factor:	N/A		ft²
SHGC:			
Area Weighted Average Overhang Depth:			3.503 ft.
Area Weighted Average SHGC:			0.409
8. Skylights			Area
c. U-Factor:(AVG)	N/A		ft²
SHGC(AVG):	N/A		
9. Floor Types (1216.0 sqft.)		Insulation	Area
a. Slab-On-Grade Edge Insulation		R=0.0	1216.00 ft²
b. N/A		R=	ft²
c. N/A		R=	ft²

10. Wall Types(1312.0 sqft.)		Insulation	Area
a. Concrete Block - Int Insul, Exterior		R=3.0	1108.00 ft²
b. Concrete Block - Int Insul, Adjacent		R=3.0	204.00 ft²
c. N/A		R=	ft²
d. N/A		R=	ft²
11. Ceiling Types (1216.0 sqft.)		Insulation	Area
a. Under Attic (Vented)		R=30.0	1216.00 ft²
b. N/A		R=	ft²
c. N/A		R=	ft²
12. Ducts		R	ft²
a. Sup: Attic, Ret: Hall, AH: Hall		6	224.8
13. Cooling systems		kBtu/hr	Efficiency
a. Central Unit		22.2	SEER:16.50
14. Heating systems		kBtu/hr	Efficiency
a. Electric Strip Heat		18.8	COP:1.00
15. Hot water systems			
a. Electric			Cap: 50 gallons
			EF: 0.950
b. Conservation features			
Heat Recovery Unit			
16. Credits			CF, CV, Pstat

Glass/Floor Area: 0.188

Total Proposed Modified Loads: 51.81

Total Baseline Loads: 60.62

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 5.00 ACH50 (R402.4.1.2).
- Compliance requires a roof emittance test in accordance with R405.7.2
- Compliance with a proposed duct leakage Qn requires a Duct Leakage Test Report confirming duct leakage to outdoors, tested in accordance with ANSI/RESNET/ICC 380, is not greater than 0.030 Qn for whole house.

INPUT SUMMARY CHECKLIST REPORT

FLOORS

√	#	Floor Type	Space	Perimeter	Perimeter R-Value	Area	Joist R-Value	Tile	Wood	Carpet
_____	8	Slab-On-Grade Edge Insulatio	Laundry Room	17 ft	0	60 ft²	----	0	0	1
_____	9	Slab-On-Grade Edge Insulatio	Bedroom 1	13 ft	0	125 ft²	----	0	0	1
_____	10	Slab-On-Grade Edge Insulatio	Hall	1 ft	0	56 ft²	----	0	0	1

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	1235 ft²	108 ft²	Medium	N	0.85	No	0.89	Yes	0	10.02

ATTIC

√	#	Type	Ventilation	Vent Ratio (1 in)	Area	RBS	IRCC
_____	1	Full attic	Vented	300	1216 ft²	N	N

CEILING

√	#	Ceiling Type	Space	R-Value	Ins Type	Area	Framing Frac	Truss Type
_____	1	Under Attic (Vented)	Master Bedroom	30	Blown	225 ft²	0.11	Wood
_____	2	Under Attic (Vented)	Bedroom 1	30	Blown	125 ft²	0.11	Wood
_____	3	Under Attic (Vented)	Bedroom 2	30	Blown	160 ft²	0.11	Wood
_____	4	Under Attic (Vented)	Hall	30	Blown	56 ft²	0.11	Wood
_____	5	Under Attic (Vented)	Laundry Room	30	Blown	60 ft²	0.11	Wood
_____	6	Under Attic (Vented)	Dining Room	30	Blown	140 ft²	0.11	Wood
_____	7	Under Attic (Vented)	Living Room	30	Blown	250 ft²	0.11	Wood
_____	8	Under Attic (Vented)	Kitchen	30	Blown	110 ft²	0.11	Wood
_____	9	Under Attic (Vented)	Bathroom 1	30	Blown	40 ft²	0.11	Wood
_____	10	Under Attic (Vented)	Bathroom 2	30	Blown	50 ft²	0.11	Wood

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	E	Exterior	Concrete Block - Int Insul	Master Bedro	3	17		8		136.0 ft²		0	0.75	0
____	2	S	Exterior	Concrete Block - Int Insul	Master Bedro	3	14	0	8		112.0 ft²		0	0.75	0
____	3	W	Exterior	Concrete Block - Int Insul	Bedroom 1	3	13		8		104.0 ft²		0	0.75	0
____	4	S	Exterior	Concrete Block - Int Insul	Bedroom 2	3	11		8		88.0 ft²		0	0.75	0
____	5	W	Exterior	Concrete Block - Int Insul	Bedroom 2	3	14		8		112.0 ft²		0	0.75	0
____	6	E	Exterior	Concrete Block - Int Insul	Dining Room	3	13	6	8		108.0 ft²		0	0.75	0
____	7	W	Exterior	Concrete Block - Int Insul	Living Room	3	18	6	8		148.0 ft²		0	0.75	0
____	8	E	Exterior	Concrete Block - Int Insul	Kitchen	3	11		8		88.0 ft²		0	0.75	0
____	9	N	Exterior	Concrete Block - Int Insul	Laundry Roo	3	11		8		88.0 ft²		0	0.75	0
____	10	E	Exterior	Concrete Block - Int Insul	Bathroom 1	3	5		8		40.0 ft²		0	0.75	0
____	11	E	Exterior	Concrete Block - Int Insul	Bathroom 2	3	5		8		40.0 ft²		0	0.75	0
____	12	E	Exterior	Concrete Block - Int Insul	Laundry Roo	3	5	6	8		44.0 ft²		0	0.75	0

FORM R405-2020

INPUT SUMMARY CHECKLIST REPORT

COOLING SYSTEM

√	#	System Type	Subtype	Subtype	Efficiency	Capacity	Air Flow	SHR	Block	Ducts
_____	1	Central Unit/	Split	Singl	SEER: 16.5	22.2 kBtu/hr	660 cfm	0.75	1	sys#1

HOT WATER SYSTEM

√	#	System Type	SubType	Location	EF	Cap	Use	SetPnt	Conservation
_____	1	Electric	None	Laundry Room	0.950296	50 gal	60 gal	120 deg	Heat Recovery Unit

SOLAR HOT WATER SYSTEM

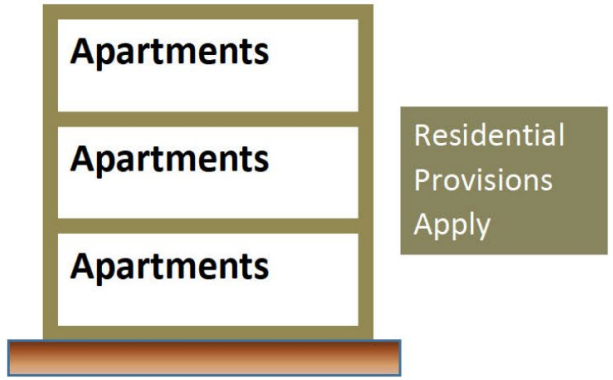
√	FSEC Cert #	Company Name	System Model #	Collector Model #	Collector Area	Storage Volume	FEF
_____	None	None			ft²		

DUCTS

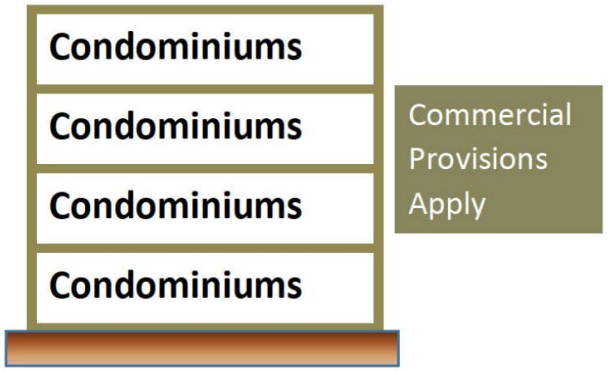
√	#	---- Supply ---- Location	R-Value	Area	---- Return ---- Location	Area	Leakage Type	Air Handler	CFM 25 TOT	CFM25 OUT	QN	RLF	HVAC # Heat	Cool
_____	1	Attic	6	224.8 ft	Hall	0 ft²	Prop. Leak Free	Hall	--- cfm	36.5 cfm	0.03	0.50	1	1

When is a Building Commercial according to the Energy Code?

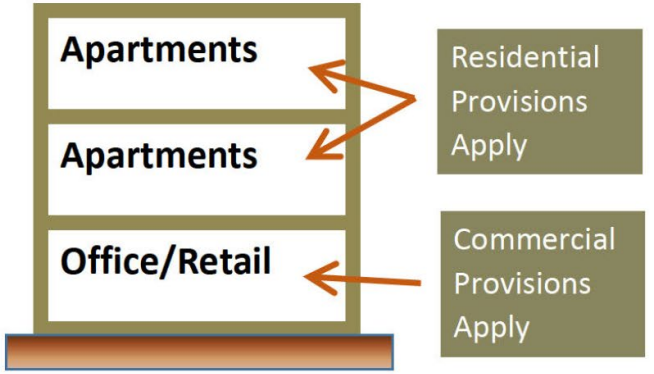
Example 1. An apartment building is three stories above grade. Would the commercial or residential provisions apply? The residential provisions would apply since the Group R-2 building is three stories of less in height.



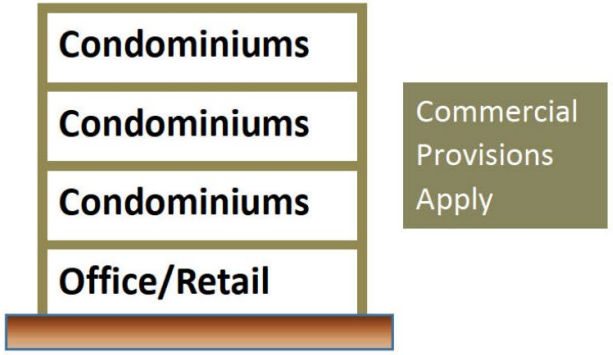
Example 2. A condominium building is four stories above grade. Would the commercial or residential provisions apply? The commercial provisions of the energy code would apply to the entire building since the Group R-2 building is more than three stories in height.



Example 3. A mixed occupancy building is 3-stories above grade with office and retail space on the ground floor and apartments on the second and third floor. Would the commercial or residential provisions apply? The mixed occupancy building presents a more complex question. The commercial provisions of the energy code apply to the first floor since it is not a residential occupancy. The residential provisions of the energy code apply to the second and third floor since they are an Group R-2 occupancy but not above the third floor.



Example 4. A mixed occupancy building is 4-stories above grade with office and retail space on the ground floor and condominiums on the second, third, and fourth floor. Would the commercial or residential provisions apply? The commercial provisions of the energy code apply to the entire building since the building is over three stories in height.



Commercial Energy Code has Three Pathways

C401.2 Application. Commercial buildings shall comply with one of the following:

1. The requirements of ANSI/ASHRAE/IESNA 90.1, excluding section 9.4.1.1(g), section 8.4.2 and section 8.4.3 of the standard.
2. The requirements of Sections C402 through C405 and Section C408. In addition, commercial buildings shall comply with Section C406 and tenant spaces shall comply with Section C406.1.1.
3. The requirements of Sections C402.5, C403.2, C404, C405.2, C405.4, C405.5, C407 and C408. The building energy cost shall be equal to or less than 85 percent of the standard reference design building.

STANDARD

ANSI/ASHRAE/IES Standard 90.1-2016
(Supersedes ANSI/ASHRAE/IES Standard 90.1-2013)
Includes ANSI/ASHRAE/IES addenda listed in Appendix H

Energy Standard for Buildings Except Low-Rise Residential Buildings
(I-P Edition)

See Appendix H for approval dates by the ASHRAE Standards Committee, the ASHRAE Board of Directors, the IES Board of Directors, and the American National Standards Institute.

 ISSN 1041-2336

Check List

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

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

WARNING: INPUT REPORT NOT GENERATED.
To include input report in final submission, go to the Project Form, Settings Tab and check the box - "Append Input Report to Compliance Output Report"
Then rerun your calculation

How do you know what Path they took?

Option #2 is Prescriptive Code

Appendix Form C402 can be used

APPENDIX CA

FORMS

FLORIDA BUILDING CODE, ENERGY CONSERVATION CHAPTER C4—COMMERCIAL ENERGY EFFICIENCY			
Form C402-2020 ALTERATIONS, RENOVATIONS and BUILDING SYSTEMS			
	Climate Zone:		
Project Name:	*Occupancy type:*		
Address:	Alteration ☐ Renovation ☐ Building System ☐		
City, Zip Code:	*Building Permit No.:*		
Builder:	*Permitting Office:*		
Owner:			

BUILDING ENVELOPE INFORMATION (Where changed)

Envelope Component	Description	Requirement		Efficiency	
		Location	Unit	Required	Installed
Roof type		*Table C402.1.4 or Table C402.1.3*	*≤ U-factor or ≥ R-value*		
Roof reflectance/Emittance (low slope roofs)		*Table C402.3*	*≥ Solar reflectance, ≥ Thermal emittance*		
Wall type, above grade		*Table C402.1.4 or Table C402.1.3*	*≤ U-factor or ≥ R-value*		
Wall, below grade					
Floor type					
Vertical fenestrations		*Table C402.4*	*≤ U-factor*		
			≤ SHGC		
Skylights			*≤ U-factor*		
			≤ SHGC		

BUILDING SYSTEMS INFORMATION [for HVAC, service hot water or pool heating, lighting systems and replacement fenestration (C501.7)]

System	Type (describe system)	Requirement		Efficiency	
		Location	Unit	Required	Installed
Air-conditioning system		*Tables C403.2.3 (1-3, 6-8, 9-11)*	*SEER or EER, IEER*		
Heating system		*Tables C403.2.3 (2-6)*	*HSPF or COP AFUE, E_t or E_c*		
Ventilation/air handling system		*Tables C403.2.12.1(1-2)*	*Fan power (cfm)*		
Ducts	*Location:*	*Table C403.2.9.1*	*R-value*		
Piping	*Fluid design operating temp:*	*Table C403.2.10*	*Inches*		
Hot water		*Table C404.2*	*EF, E_t, COP*		
Lighting	*Space types: (append list)*	*Table C405.3.2 (1 or 2)*	*Lighting power density*		
Fenestrations: Enter information in BUILDING ENVELOPE INFORMATION box above.					
Other:					

COMPLIANCE IS BY ANSI/ASHRAE/IESNA 90.1 ☐
(Submit alternate form or append documents as needed)

I hereby certify that the plans and specifications covered by the calculation are in compliance with the Florida Building Code, Energy Conservation. *PREPARED BY: _____* *DATE: _____* *I hereby certify that this building is in compliance with the Florida Building Code, Energy Conservation:* *OWNER/AGENT: _____* *DATE: _____*	*Review of plans and specifications covered by this calculation indicates compliance with the Florida Building Code, Energy Conservation. Before construction is completed, this building will be inspected for compliance in accordance with Section 553.908, F.S.* *BUILDING OFFICIAL: _____* *DATE: _____*

Option #3 is Performance Based

Must Look at all Components of Construction

Check List

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

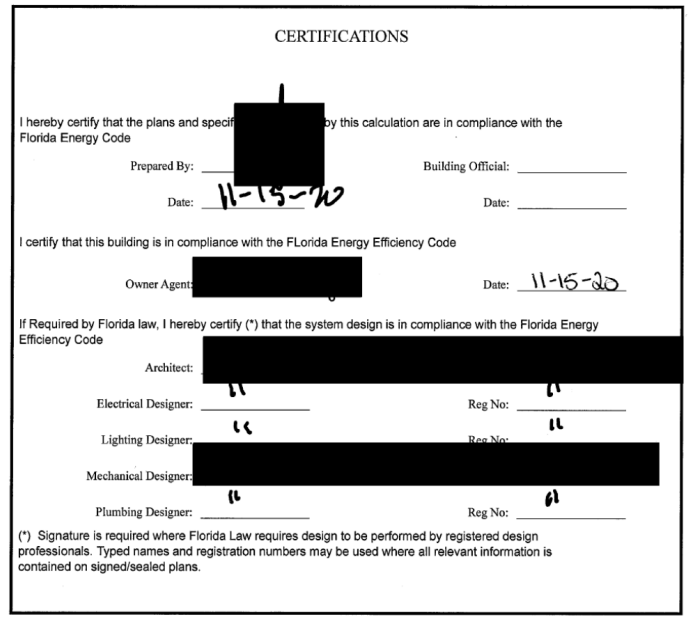
- [x] This Checklist
- [x] The full compliance report generated by the software that contains the project summary, compliance summary, certifications and detailed component compliance reports.
- [x] The compliance report must include the full input report generated by the software as contigous part of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

How to Review a Commercial Performance based report

Compliance Summary

Component	Design	Criteria	Result
Gross Energy Cost (in $)	5,012.0	5,442.0	**PASSED**
LIGHTING CONTROLS			**PASSES**
EXTERNAL LIGHTING			**PASSES**
HVAC SYSTEM			**PASSES**
PLANT			**No Entry**
WATER HEATING SYSTEMS			**PASSES**
PIPING SYSTEMS			**PASSES**
Met all required compliance from Check List?			**Yes/No/NA**

IMPORTANT MESSAGE
Info 5009 -- -- -- An input report of this design building must be submitted along with this Compliance Report



CERTIFICATIONS

I hereby certify that the plans and specif [redacted] by this calculation are in compliance with the Florida Energy Code

Prepared By: [redacted] Building Official: _____

Date: 11-15-20 Date: _____

I certify that this building is in compliance with the FLorida Energy Efficiency Code

Owner Agent: [redacted] Date: 11-15-20

If Required by Florida law, I hereby certify (*) that the system design is in compliance with the Florida Energy Efficiency Code

Architect: [redacted]

Electrical Designer: _____ Reg No: _____

Lighting Designer: _____ Reg No: _____

Mechanical Designer: [redacted]

Plumbing Designer: _____ Reg No: _____

(*) Signature is required where Florida Law requires design to be performed by registered design professionals. Typed names and registration numbers may be used where all relevant information is contained on signed/sealed plans.

[redacted]

EVERYONE MUST SIGN!!

Input Data Report

Project Information

Project Name: [redacted]

Address:

Owner:

Building Type: Multi-Family

Building Classification: New Finished building

No.of Stories: 4

GrossArea (SF): 11,351

Bldg. Rotation: None

Zones

No	Acronym	Description	Type	Area [sf]	Multi	Total Area [sf]	
1	Garage	---	UNCONDITIONED	404.0	1	404.0	☐
2	Unit 1	---	CONDITIONED	1229.0	1	1229.0	☐
3	Unit 2,3,6,7	---	CONDITIONED	1255.0	1	1255.0	☐
4	Unit 12,13	---	CONDITIONED	1733.0	1	1733.0	☐
5	Unit 4,5	---	CONDITIONED	1135.0	1	1135.0	☐
6	Unit 9	---	CONDITIONED	1271.0	1	1271.0	☐
7	Unit 10,11,14,15	---	CONDITIONED	1287.0	1	1287.0	☐
8	Unit 4,5 Office	---	CONDITIONED	537.0	1	537.0	☐
9	Unit 8	---	CONDITIONED	1229.0	1	1229.0	☐
10	Unit 16	---	CONDITIONED	1271.0	1	1271.0	☐

Lighting

No	Type	Category	No. of Luminaires	Watts per Luminaire	Power [W]	Control Type	No.of Ctrl pts	
In Zone: Garage								
In Space: Garage								
1	LED	General Lighting	1	300	300	Manual On/Off	1	☐
In Zone: Unit 1								
In Space: Unit 1								
1	LED	General Lighting	1	400	400	Manual On/Off	1	☐
In Zone: Unit 2,3,6,7								
In Space: Unit 2,3,6,7								
1	LED	General Lighting	1	400	400	Manual On/Off	1	☐
In Zone: Unit 12,13								
In Space: Unit 12,13								
1	LED	General Lighting	1	500	500	Manual On/Off	1	☐
In Zone: Unit 4,5								
In Space: Unit 4,5								
1	LED	General Lighting	1	400	400	Manual On/Off	1	☐
In Zone: Unit 9								
In Space: Unit 9								
1	LED	General Lighting	1	400	400	Manual On/Off	1	☐
In Zone: Unit 10,11,14,15								
In Space: Unit 10,11,14,15								
1	LED	General Lighting	1	400	400	Manual On/Off	1	☐
In Zone: Unit 4,5 Office								
In Space: Unit 4,5 Office								
1	LED	General Lighting	1	500	500	Manual On/Off	1	☐
In Zone: Unit 8								
In Space: Unit 8								
1	LED	General Lighting	1	400	400	Manual On/Off	1	☐
In Zone: Unit 16								
In Space: Unit 16								
1	LED	General Lighting	1	400	400	Manual On/Off	1	☐

Walls (Walls will be rotated clockwise by building rotation value)

No	Description	Type	Width [ft]	H (Effec) [ft]	Multi plier	Area [sf]	Orient ation	Cond- uctance [Btu/h.sf.F]	Heat Capacity [Btu/sf.F]	Dens. [lb/cf]	R-Value [h.sf.F/Btu]	
In Zone:	**Unit 1**											
1	---	Exterior wall	38.80	10.00	1	388.0	North	0.1275	9.928	55.75	7.8	☐
2	---	Exterior wall	2.20	10.00	1	22.0	East	0.1275	9.928	55.75	7.8	☐
3	---	Exterior wall	19.70	10.00	1	197.0	South	0.1275	9.928	55.75	7.8	☐
4	---	Exterior wall	45.80	10.00	1	458.0	West	0.1275	9.928	55.75	7.8	☐
5	---	Garage Partition	19.30	10.00	1	193.0	North	0.0760	1.056	15.34	13.2	☐
In Zone:	**Unit 2,3,6,7**											
1	---	Exterior wall	39.40	10.00	1	394.0	North	0.1275	9.928	55.75	7.8	☐
2	---	Exterior wall	1.50	10.00	1	15.0	East	0.1275	9.928	55.75	7.8	☐
3	---	Exterior wall	19.80	10.00	1	198.0	South	0.1275	9.928	55.75	7.8	☐
4	---	Exterior wall	2.80	10.00	1	28.0	West	0.1275	9.928	55.75	7.8	☐
5	---	Garage Partition	19.70	10.00	1	197.0	North	0.0760	1.056	15.34	13.2	☐
In Zone:	**Unit 12,13**											
1	---	Exterior wall	52.60	10.00	1	526.0	North	0.1275	9.928	55.75	7.8	☐
2	---	Exterior wall	19.30	10.00	1	193.0	East	0.1275	9.928	55.75	7.8	☐
3	---	Exterior wall	55.20	10.00	1	552.0	South	0.1275	9.928	55.75	7.8	☐
4	---	Exterior wall	2.40	10.00	1	24.0	West	0.1275	9.928	55.75	7.8	☐
In Zone:	**Unit 4,5**											
1	---	Exterior wall	27.80	10.00	1	278.0	North	0.1275	9.928	55.75	7.8	☐
2	---	Exterior wall	21.30	10.00	1	213.0	South	0.1275	9.928	55.75	7.8	☐
3	---	Exterior wall	1.30	10.00	1	13.0	West	0.1275	9.928	55.75	7.8	☐
In Zone:	**Unit 9**											
1	---	Exterior wall	38.90	10.00	1	389.0	North	0.1275	9.928	55.75	7.8	☐
2	---	Exterior wall	2.90	10.00	1	29.0	East	0.1275	9.928	55.75	7.8	☐
3	---	Exterior wall	40.30	10.00	1	403.0	South	0.1275	9.928	55.75	7.8	☐
4	---	Exterior wall	47.40	10.00	1	474.0	West	0.1275	9.928	55.75	7.8	☐
5	---	Garage Partition	19.20	10.00	1	192.0	North	0.0760	1.056	15.34	13.2	☐
In Zone:	**Unit 10,11,14,15**											
1	---	Exterior wall	20.50	10.00	1	205.0	North	0.1275	9.928	55.75	7.8	☐
2	---	Exterior wall	3.00	10.00	1	30.0	East	0.1275	9.928	55.75	7.8	☐
3	---	Exterior wall	40.70	10.00	1	407.0	South	0.1275	9.928	55.75	7.8	☐
4	---	Exterior wall	0.80	10.00	1	8.0	West	0.1275	9.928	55.75	7.8	☐
In Zone:	**Unit 4,5 Office**											
1	---	Exterior wall	27.30	10.00	1	273.0	North	0.1275	9.928	55.75	7.8	☐
2	---	Exterior wall	1.40	10.00	1	14.0	West	0.1275	9.928	55.75	7.8	☐
3	---	Garage Partition	27.30	10.00	1	273.0	North	0.0760	1.056	15.34	13.2	☐

Windows (Windows will be rotated clockwise by building rotation value)

No	Description	Orientation	Shaded	U [Btu/hr sf F]	SHGC	Vis.Tra	W [ft]	H (Effec) [ft]	Multi plier	Total Area [sf]	
In Zone: Unit 1											
In Wall: North											
1	---	North	No	1.0000	0.50	0.76	14.13	8.00	1	113.0	☐
In Wall: South											
1	---	South	No	1.0000	0.50	0.76	9.25	4.00	1	37.0	☐
In Wall: West											
1	---	West	No	1.0000	0.50	0.76	14.75	4.00	1	59.0	☐
In Zone: Unit 10,11,14,15											
In Wall: North											
1	---	North	No	1.0000	0.50	0.76	15.38	8.00	1	123.0	☐
In Wall: South											
1	---	South	No	1.0000	0.50	0.76	11.00	4.00	1	44.0	☐
In Zone: Unit 12,13											
In Wall: North											
1	---	North	No	1.0000	0.50	0.76	21.00	8.00	1	168.0	☐
In Wall: South											
1	---	South	No	1.0000	0.50	0.76	11.00	4.00	1	44.0	☐
In Zone: Unit 16											
In Wall: East											
1	---	East	No	1.0000	0.50	0.76	16.00	4.00	1	64.0	☐
In Wall: North											
1	---	North	No	1.0000	0.50	0.76	15.38	8.00	1	123.0	☐
In Wall: South											
1	---	South	No	1.0000	0.50	0.76	11.00	4.00	1	44.0	☐
In Zone: Unit 2,3,6,7											
In Wall: North											
1	---	North	No	1.0000	0.50	0.76	14.13	8.00	1	113.0	☐
In Wall: South											
1	---	South	No	1.0000	0.50	0.76	9.25	4.00	1	37.0	☐
In Zone: Unit 4,5											
In Wall: North											
1	---	North	No	1.0000	0.50	0.76	16.50	4.00	1	66.0	☐
In Wall: South											
1	---	South	No	1.0000	0.50	0.76	19.00	4.00	1	76.0	☐
In Zone: Unit 4,5 Office											
In Wall: North											
1	---	North	No	1.0000	0.50	0.76	10.00	8.00	1	80.0	☐
In Zone: Unit 8											
In Wall: East											
1	---	East	No	1.0000	0.50	0.76	14.75	4.00	1	59.0	☐
In Wall: North											
1	---	North	No	1.0000	0.50	0.76	14.13	8.00	1	113.0	☐
In Wall: South											
1	---	South	No	1.0000	0.50	0.76	9.25	4.00	1	37.0	☐

Doors

No	Description	Type	Shade?	Width [ft]	H (Effec) [ft]	Multi plier	Area [sf]	Cond. [Btu/h.sf.F]	Dens. [lb/cf]	Ht Cap. [Btu/sf. F]	R [h.sf.F/ Btu]	
In Zone: Unit 1												
	In Wall: North											
1	---	Solid core flush (2.25)	No	2.00	7.00	1	14.0	0.3504	0.00	0.00	2.85	☐
	In Wall: Garage											
1	---	Solid core flush (2.25)	No	3.00	7.00	1	21.0	0.3504	0.00	0.00	2.85	☐
In Zone: Unit 2,3,6,7												
	In Wall: North											
1	---	Solid core flush (2.25)	No	2.00	7.00	1	14.0	0.3504	0.00	0.00	2.85	☐
	In Wall: Garage											
1	---	Solid core flush (2.25)	No	3.00	7.00	1	21.0	0.3504	0.00	0.00	2.85	☐
In Zone: Unit 12,13												
	In Wall: South											
1	---	Solid core flush (2.25)	No	3.00	7.00	1	21.0	0.3504	0.00	0.00	2.85	☐
In Zone: Unit 4,5												
	In Wall: North											
1	---	Solid core flush (2.25)	No	2.00	7.00	1	14.0	0.3504	0.00	0.00	2.85	☐
In Zone: Unit 9												
	In Wall: South											
1	---	Solid core flush (2.25)	No	3.14	7.00	1	22.0	0.3504	0.00	0.00	2.85	☐
In Zone: Unit 4,5 Office												
	In Wall: North											
1	---	Solid core flush (2.25)	No	2.00	7.00	1	14.0	0.3504	0.00	0.00	2.85	☐
	In Wall: Garage											
1	---	Solid core flush (2.25)	No	3.00	7.00	1	21.0	0.3504	0.00	0.00	2.85	☐
In Zone: Unit 8												
	In Wall: North											
1	---	Solid core flush (2.25)	No	2.00	7.00	1	14.0	0.3504	0.00	0.00	2.85	☐
	In Wall: Garage											
1	---	Solid core flush (2.25)	No	3.00	7.00	1	21.0	0.3504	0.00	0.00	2.85	☐
In Zone: Unit 16												
	In Wall: North											
1	---	Solid core flush (2.25)	No	2.00	7.00	1	14.0	0.3504	0.00	0.00	2.85	☐

Roofs

No	Description	Type	Width [ft]	H (Effec) [ft]	Multi plier	Area [sf]	Tilt [deg]	Cond. [Btu/h.Sf. F]	Heat Cap [Btu/sf. F]	Dens. [lb/cf]	R-Value [h.sf.F/Btu	
In Zone:	**Unit 12,13**											
1	---	Roof Deck	11.60	100.00	1	1160.0	0.00	0.0444	1.72	11.43	22.5	☐
In Zone:	**Unit 9**											
1	---	Roof Deck	83.50	10.00	1	835.0	0.00	0.0444	1.72	11.43	22.5	☐
In Zone:	**Unit 10,11,14,15**											
1	---	Roof Deck	83.30	10.00	1	833.0	0.00	0.0444	1.72	11.43	22.5	☐
In Zone:	**Unit 16**											
1	---	Roof Deck	83.50	10.00	1	835.0	0.00	0.0444	1.72	11.43	22.5	☐

Skylights

No	Description	Type	U [Btu/hr sf F]	SHGC	Vis.Trans	W [ft]	H (Effec) [ft]	Multi-plier	Area [Sf]	Total Area [Sf]	
In Zone:											
In Roof:											☐

Floors

No	Description	Type	Width [ft]	H (Effec) [ft]	Multi plier	Area [sf]	Cond. [Btu/h.sf.F	Heat Cap. [Btu/sf. F]	Dens. [lb/cf]	R-Value [h.sf.F/Btu	
In Zone:	**Unit 1**										
1	---	Rised Floor	40.40	10.00	1	404.0	0.0690	0.95	11.77	14.49	☐
In Zone:	**Unit 2,3,6,7**										
1	---	Rised Floor	40.40	10.00	1	404.0	0.0690	0.95	11.77	14.49	☐
In Zone:	**Unit 4,5**										
1	---	Rised Floor	54.20	10.00	1	542.0	0.0690	0.95	11.77	14.49	☐
In Zone:	**Unit 8**										
1	---	Rised Floor	40.40	10.00	1	404.0	0.0690	0.95	11.77	14.49	☐

Systems

AHU/CU-4GF,5GF --- **Constant Volume Air Cooled Split System < 65000 Btu/hr** **No. Of Units** 2

Component	Category	Capacity	Efficiency	IPLV	
1	Cooling System	18100.00	16.00	8.00	☐
2	Heating System	19100.00	1.00		☐
3	Air Handling System -Supply	600.00	0.50		☐

AHU/CU-4,5 --- **Constant Volume Air Cooled Split System < 65000 Btu/hr** **No. Of Units** 2

Component	Category	Capacity	Efficiency	IPLV	
1	Cooling System	25700.00	15.00	8.00	☐
2	Heating System	24900.00	1.00		☐
3	Air Handling System -Supply	800.00	0.50		☐

AHU/CU-1,8,2,3,6,7 --- **Constant Volume Air Cooled Split System < 65000 Btu/hr** **No. Of Units** 6

Component	Category	Capacity	Efficiency	IPLV	
1	Cooling System	28500.00	16.00	8.00	☐
2	Heating System	24220.00	1.00		☐
3	Air Handling System -Supply	1000.00	0.50		☐

RTU-9,16 --- **Constant Volume Air Cooled Single Package System < 65000 Btu/hr** **No. Of Units** 2

Component	Category	Capacity	Efficiency	IPLV	
1	Cooling System	36000.00	15.00	8.00	☐
2	Heating System	13729.00	1.00		☐
3	Air Handling System -Supply	1270.00	0.80		☐
4	Air Distribution System (Sup)		6.00		☐
5	Air Distribution System (Ret)		6.00		☐

RTU-10,11,14,15 --- **Constant Volume Air Cooled Single Package System < 65000 Btu/hr** **No. Of Units** 4

Component	Category	Capacity	Efficiency	IPLV	
1	Cooling System	29900.00	15.00	8.00	☐
2	Heating System	13328.00	1.00		☐
3	Air Handling System -Supply	1040.00	0.80		☐
4	Air Distribution System (Sup)		6.00		☐
5	Air Distribution System (Ret)		6.00		☐

RTU-12,13	---	Constant Volume Air Cooled Single Package System < 65000 Btu/hr		No. Of Units 2	
Component	Category	Capacity	Efficiency	IPLV	
1	Cooling System	42600.00	15.00	8.00	☐
2	Heating System	14129.00	1.00		☐
3	Air Handling System -Supply	1470.00	0.80		☐
4	Air Distribution System (Sup)		6.00		☐
5	Air Distribution System (Ret)		6.00		☐

Plant

Equipment	Category	Size	Inst.NoEff.	IPLV

Water Heaters

	W-Heater Description	Capacity	Cap.Unit	I/P Rt.	Efficiency	Loss	
1	Electric water heater	38 [Gal]		5 [kW]	0.9570 [Ef]	[Btu/h]	☐

Ext-Lighting

	Description	Category	No. of Lumin-aires	Watts per Lumin-aire	Area/Len/No [sf/ft/No]	Control Type	Wattage [W]	
1	Ext Light 1	Walk way less than 10 feet wide	9	80	506.00	Photo Sensor control	720.00	☐

Piping

No	Type	Operating Temp [F]	Insulation Conductivity [Btu-in/h.sf.F]	Nomonal pipe Diameter [in]	Insulation Thickness [in]	Is Runout?	
1	Heating System (Steam, Steam Condensate, & Hot Water)	105.00	0.28	0.25	1.00	No	☐
2	Cooling Systems (Chilled Water, Brine and Refrigerant)	45.00	0.28	0.25	0.75	No	☐

Fenestration Used

Name	Glass Type	No. of Panes	Glass Conductance [Btu/h.sf.F]	SHGC	VLT
U=1.0/SHGC=0.50	User Defined	1	1.0000	0.5000	0.7600

Materials Used

Mat No	Acronym	Description	Only R-Value Used	RValue [h.sf.F/Btu]	Thick [ft]	Cond-uctivity [Btu/h.ft.F	Density [lb/cf]	Sp. Heat [Btu/lb.F]	
178	Matl178	CARPET W/RUBBER PAD	Yes	1.2300					☐
267	Matl267	0.75" stucco	No	0.1563	0.0625	0.4000	16.00	0.2000	☐
105	Matl105	CONC BLK HW, 8IN, HOLLOW	No	1.1002	0.6667	0.6060	69.00	0.2000	☐
279	Matl279	Solid core flush (2.25")	Yes	2.8537					☐
94	Matl94	BUILT-UP ROOFING, 3/8IN	No	0.3366	0.0313	0.0930	70.00	0.3500	☐
1010	ApLbMat1010	Outside surface resistance	Yes	0.3300					☐
1013	ApLbMat1013	Inside surface resistance	Yes	0.6900					☐
1022	ApLbMat1022	GYP OR PLAS BOARD,5/8IN	No	0.5663	0.0521	0.0920	50.00	0.2000	☐
1026	ApLbMat1026	R-3 Generic Insulation	No	5.0000	0.1091	0.0218	0.30	0.2000	☐
1027	ApLbMat1027	R-11 Generic Insulation	No	11.0000	0.2401	0.0218	0.30	0.2000	☐
1028	ApLbMat1028	R-19 Generic Insulation	No	19.0000	0.4147	0.0218	0.30	0.2000	☐
1029	ApLbMat1029	PLYWOOD, 5/8IN	No	0.7894	0.0521	0.0660	34.00	0.2900	☐
1031	ApLbMat1031	Air space resistance	Yes	0.9100					☐
1032	ApLbMat1032	GYP OR PLAS BOARD,1/2IN	No	0.4533	0.0417	0.0920	50.00	0.2000	☐

What Constructs did they use?

Constructs Used

No	Name	Simple Construct	Massless Construct	Conductance [Btu/h.sf.F]	Heat Cap [Btu/sf.F]	Density [lb/cf]	RValue [h.sf.F/Btu]
1057	Rised Floor	No	No	0.07	0.95	11.77	14.5

Layer	Material No.	Material	Thickness [ft]	Framing Factor
1	1013	Inside surface resistance		0.000
2	178	CARPET W/RUBBER PAD		0.000
3	1029	PLYWOOD, 5/8IN	0.0521	0.000
4	1027	R-11 Generic Insulation	0.2401	0.000
5	1032	GYP OR PLAS BOARD,1/2IN	0.0417	0.000
6	1010	Outside surface resistance		0.000

No	Name	Simple Construct	Massless Construct	Conductance [Btu/h.sf.F]	Heat Cap [Btu/sf.F]	Density [lb/cf]	RValue [h.sf.F/Btu]
1058	Solid core flush (2.25)	No	Yes	0.35			2.9

Layer	Material No.	Material	Thickness [ft]	Framing Factor
1	279	Solid core flush (2.25")		0.000

No	Name	Simple Construct	Massless Construct	Conductance [Btu/h.sf.F]	Heat Cap [Btu/sf.F]	Density [lb/cf]	RValue [h.sf.F/Btu]
1060	Exterior wall	No	No	0.13	9.93	55.75	7.8

Layer	Material No.	Material	Thickness [ft]	Framing Factor
1	1010	Outside surface resistance		0.000
2	267	0.75" stucco	0.0625	0.000
3	105	CONC BLK HW, 8IN, HOLLOW	0.6667	0.000
4	1013	Inside surface resistance		0.000
5	1026	R-3 Generic Insulation	0.1091	0.000
6	1022	GYP OR PLAS BOARD,5/8IN	0.0521	0.000

No	Name	Simple Construct	Massless Construct	Conductance [Btu/h.sf.F]	Heat Cap [Btu/sf.F]	Density [lb/cf]	RValue [h.sf.F/Btu]	
1062	Roof Deck	No	No	0.04	1.72	11.43	22.5	☐

Layer	Material No.	Material	Thickness [ft]	Framing Factor	
1	1010	Outside surface resistance		0.000	☐
2	94	BUILT-UP ROOFING, 3/8IN	0.0313	0.000	☐
3	1031	Air space resistance		0.000	☐
4	1029	PLYWOOD, 5/8IN	0.0521	0.000	☐
5	1032	GYP OR PLAS BOARD,1/2IN	0.0417	0.000	☐
6	1028	R-19 Generic Insulation	0.4147	0.000	☐
7	1013	Inside surface resistance		0.000	☐

No	Name	Simple Construct	Massless Construct	Conductance [Btu/h.sf.F]	Heat Cap [Btu/sf.F]	Density [lb/cf]	RValue [h.sf.F/Btu]	
1063	Garage Partition	No	No	0.08	1.06	15.34	13.2	☐

Layer	Material No.	Material	Thickness [ft]	Framing Factor	
1	1010	Outside surface resistance		0.000	☐
2	1022	GYP OR PLAS BOARD,5/8IN	0.0521	0.000	☐
3	1027	R-11 Generic Insulation	0.2401	0.000	☐
4	1022	GYP OR PLAS BOARD,5/8IN	0.0521	0.000	☐
5	1013	Inside surface resistance		0.000	☐

How to Spot a Bad Commercial Energy Report

Compliance Summary

Component	Design	Criteria	Result
Gross Energy Cost (in $)	66,686.0	81,542.0	**PASSED**
LIGHTING CONTROLS			**PASSES**
EXTERNAL LIGHTING	missing		**No Entry**
HVAC SYSTEM			**PASSES**
PLANT			**No Entry**
WATER HEATING SYSTEMS	missing		**No Entry**
PIPING SYSTEMS			**No Entry**

Met all required compliance from Check List? **Yes**/No/NA

External Lighting Compliance

Description	Category	Tradable?	Allowance (W/Unit)	Area or Length or No. of Units (Sqft or ft)	ELPA (W)	CLP (W)
					None	

What is required for External Lighting?

Ext-Lighting

	Description	Category	No. of Lumin-aires	Watts per Lumin-aire	Area/Len/No [sf/ft/No]	Control Type	Wattage [W]	
1	Ext Light 1	Walk way less than 10 feet wide	9	80	506.00	Photo Sensor control	720.00	☐

spaces.

C405.4 Exterior lighting power requirements (Mandatory). The total connected exterior lighting power calculated in accordance with Section C405.4.1 shall be not greater than the exterior lighting power allowance calculated in accordance with Section C405.4.2.

C405.4.1 Total connected exterior building exterior lighting power. The total exterior connected lighting power shall be the total maximum rated wattage of all lighting that is powered through the energy service for the building.

Exception: Lighting used for the following applications shall not be included.

C405.2.6 Exterior lighting controls. Exterior lighting systems shall be provided with controls that comply with Sections C405.2.6.1 through C405.2.6.4. Decorative lighting systems shall comply with Sections C405.2.6.1, C405.2.6.2, and C405.2.6.4.

Exceptions:

1. Lighting for covered vehicle entrances and exits from buildings and parking structures where required for eye adaptation.
2. Lighting controlled from within dwelling units.

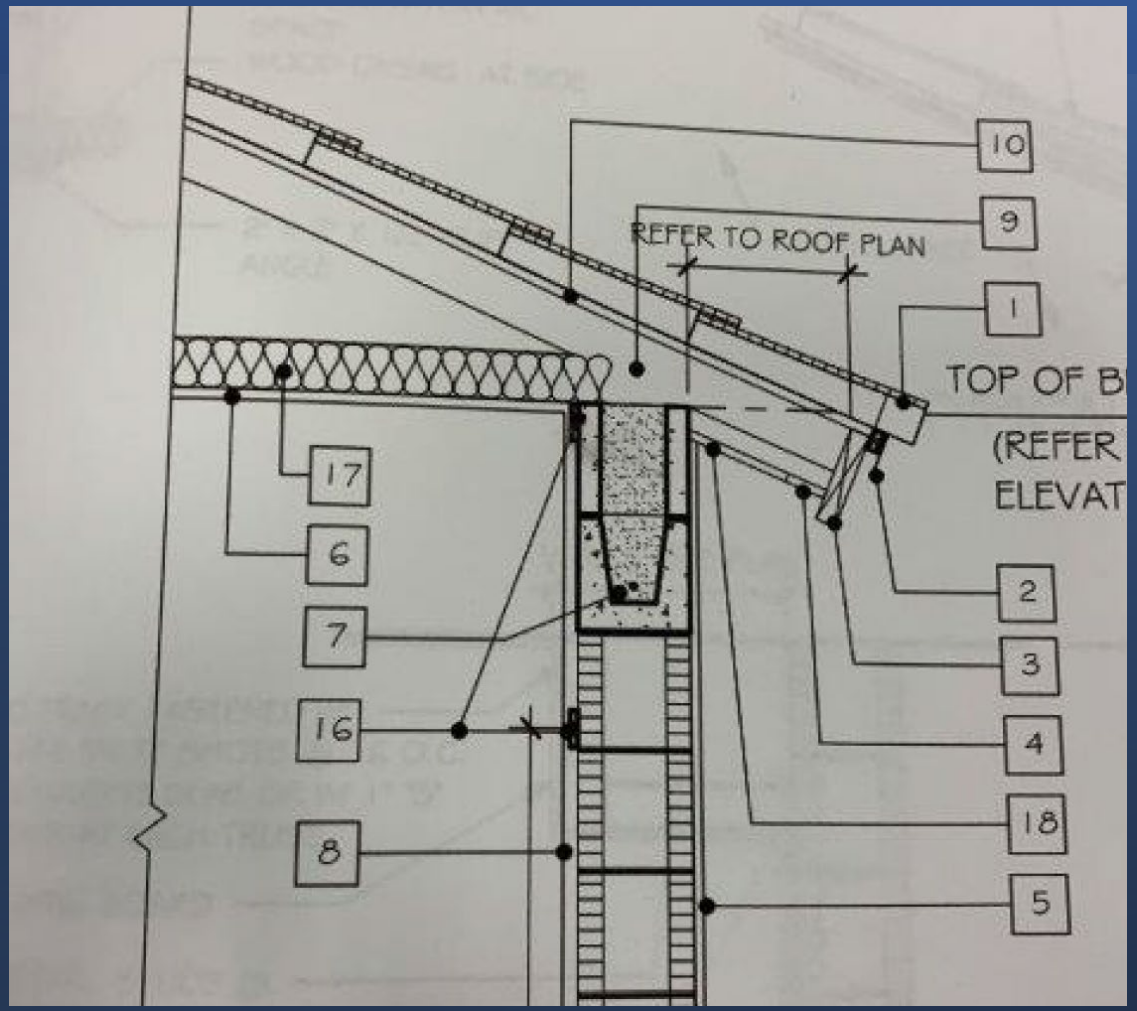
C405.2.6.1 Daylight shutoff. Lights shall be automatically turned off when daylight is present and satifies the lighting needs.

C405.2.6.2 Decorative lighting shutoff. Building facade and landscape lighting shall automatically shut off from not later than one hour after business closing to not earlier than one hour before business opening.

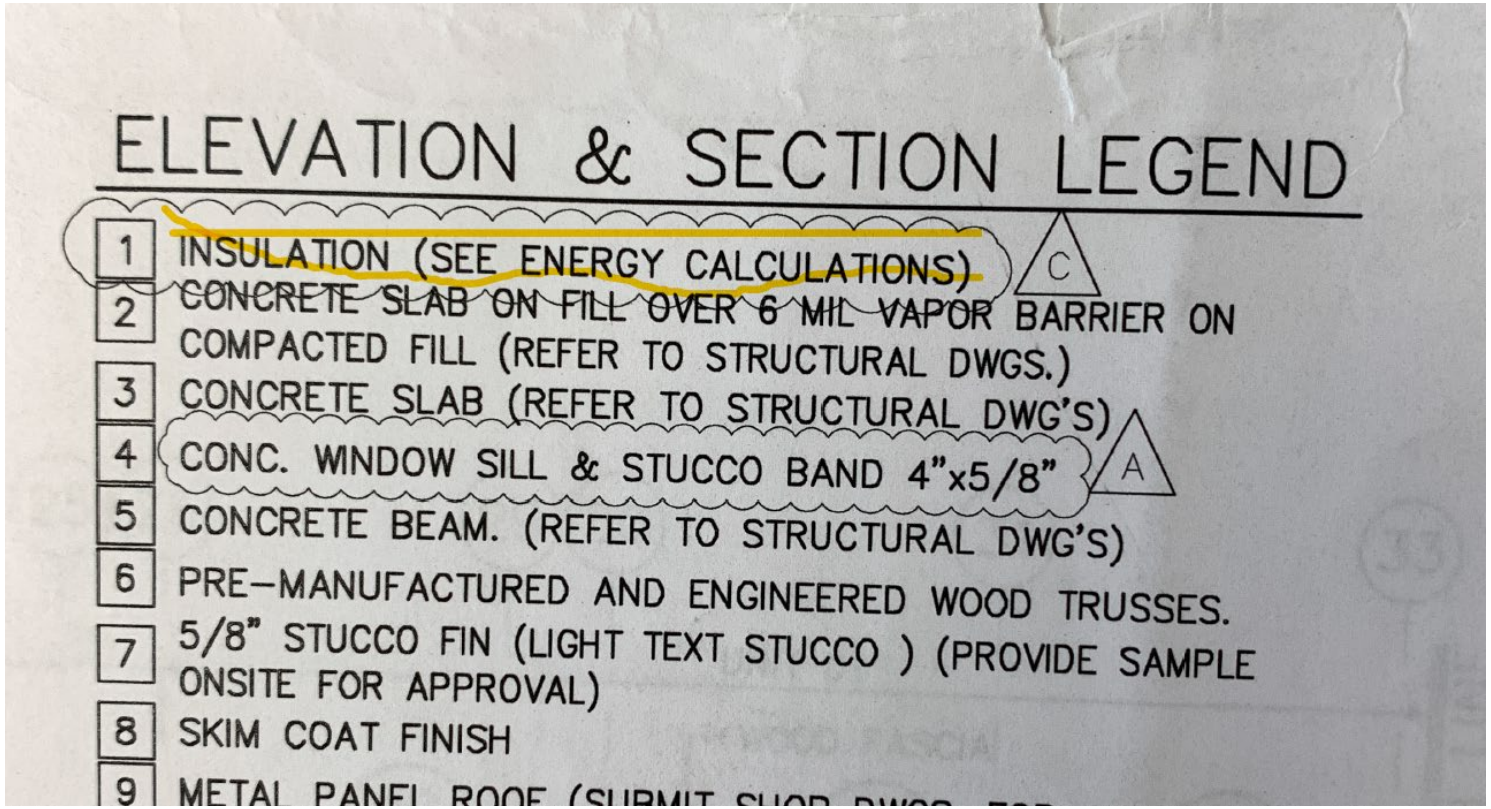
Did they give you the Input Report?

Are Items Missing on Report?

ARE ITEMS MISSING ON THE PLANS?



DO NOT ALLOW THIS STATEMENT ON THE PLANS!!



ELEVATION & SECTION LEGEND

1	INSULATION (SEE ENERGY CALCULATIONS)	C
2	CONCRETE SLAB ON FILL OVER 6 MIL VAPOR BARRIER ON COMPACTED FILL (REFER TO STRUCTURAL DWGS.)	
3	CONCRETE SLAB (REFER TO STRUCTURAL DWG'S)	
4	CONC. WINDOW SILL & STUCCO BAND 4"x5/8"	A
5	CONCRETE BEAM. (REFER TO STRUCTURAL DWG'S)	
6	PRE-MANUFACTURED AND ENGINEERED WOOD TRUSSES.	
7	5/8" STUCCO FIN (LIGHT TEXT STUCCO) (PROVIDE SAMPLE ONSITE FOR APPROVAL)	
8	SKIM COAT FINISH	
9	METAL PANEL ROOF (SUBMIT SHOP DWGS. FOR	

C103.2 Information on construction documents. Construction documents shall be drawn to scale upon suitable material. Electronic media documents are permitted to be submitted where *approved* by the *code official*. Construction documents shall be of sufficient clarity to indicate the location, nature and extent of the work proposed, and show in sufficient detail pertinent data and features of the building, systems and equipment as herein governed. Details shall include, but are not limited to, the following as applicable:

1. Insulation materials and their *R*-values.

Questions??