



ENERGY STAR

# ENERGY STAR® CERTIFIED NEW HOME

**Builder Name:** Kargar Construction Inc.  
**Permit Date/Number:** 10/11/2013 /  
**Home Address:** 623 Woodbridge Drive  
Ormond Beach FL 32174-

**Rating Company:** Ryan McCracken  
**Rater Identification Number:** 4281370  
**Rating date:** 03/19/2014  
**Version:** 3.1

## Standard features of an ENERGY STAR Certified New Home

Your ENERGY STAR certified new home has been designed, constructed, and independently verified to meet rigorous requirements for energy efficiency set by the U.S. Environmental Protection Agency (EPA), including:

### Thermal Enclosure System

A complete thermal enclosure system includes comprehensive air sealing, quality-installed insulation, and high performance windows to deliver improved comfort and lower utility bills.



Air Infiltration Test: **3.22ACH50**

Primary Insulation Levels:

**Ceiling: 1**                      **Floor: NA**

**Wall: 20**                         **Slab: 0**

Primary Window Efficiency::

**U-Value: 0.67**                 **SHGC: 0.27**

### Water Management System

A comprehensive package of water management system features to protect roofs, walls, and foundations.



Flashing, drainage planes, and site grading to move water from the roof to the ground and then away from the home.

Water-resistant materials on below-grade walls and underneath slabs to reduce the potential for water entering into the home.

Management of moisture levels in building materials during construction.

### Heating, Cooling, and Ventilation System

A high efficiency heating, cooling and ventilation system that is designed and installed for optimal performance.



Total Duct leakage:

**5.5 CFM25 per 100 sq.ft.**

Duct leakage to the Outdoors:

**1.9 CFM25 per 100 sq.ft.**

Primary Heating(System Type . Fuel Type . Efficiency):

**Electric Heat Pump : Electric : 8.00 HSPF**

Primary Cooling(System Type : Fuel Type : Efficiency):

**Central Unit : Electric : 15.00 SEER**

### Energy-Efficient Lighting and Appliances

Energy-efficient products to help reduce utility bills, while providing high-quality performance.



ENERGY STAR Qualified Lighting: **80.0 %**

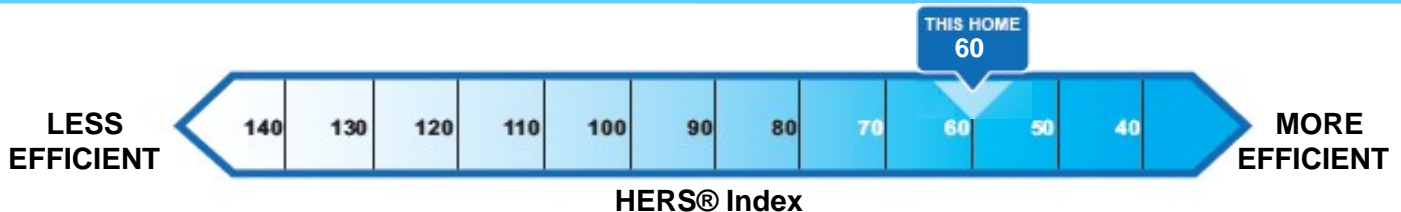
ENERGY STAR Qualified Appliances and Fans:

**Refrigerators: 1**                 **Dishwashers: 1**

**Ceiling Fans: 2**                 **Exhaust Fans: 3**

Primary Water Heater(System Type . Fuel Type . Efficiency):

**Storage : Electric : 0.86 EF**



RESNET ID: 355990017

This certificate provides a summary of the major energy efficiency and other construction features that contribute to this home earning the ENERGY STAR, including its Home Energy Rating System (HERS) index, as determined through independent inspection and verification performed by a trained professional. The Home Energy Rating System is a nationally-recognized uniform measurement of the energy efficiency of homes. Note that when a home contains multiple performance levels for a particular feature (e.g., window efficiency or insulation levels), the predominant value is shown.

Learn more at [www.energystar.gov/homefeatures](http://www.energystar.gov/homefeatures)

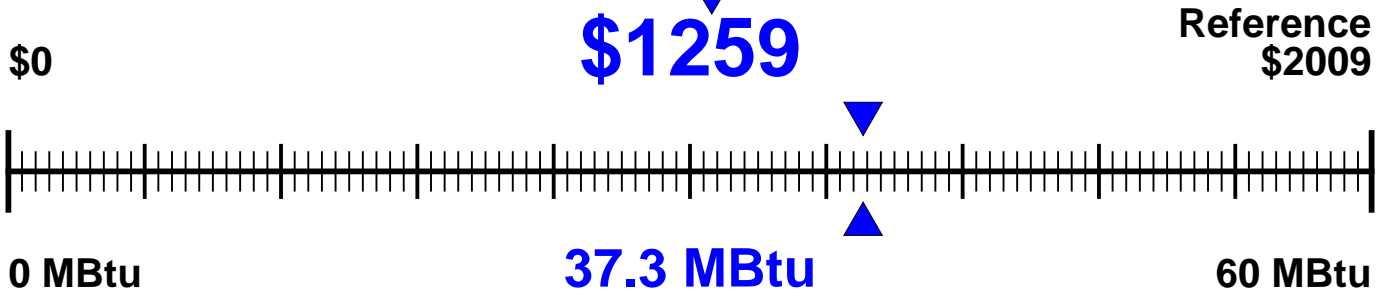
**Confirmed Rating**  
**RESNET Registration No.: 355990017**

Kargar Construction Inc.  
 623 Woodbridge Drive  
 Ormond Beach, FL 32174-

Design: Daytona Beach, FL  
 TMY: DAYTONA\_BEACH\_INTL\_AP, FL

Title: Plantation Bay Lot 36

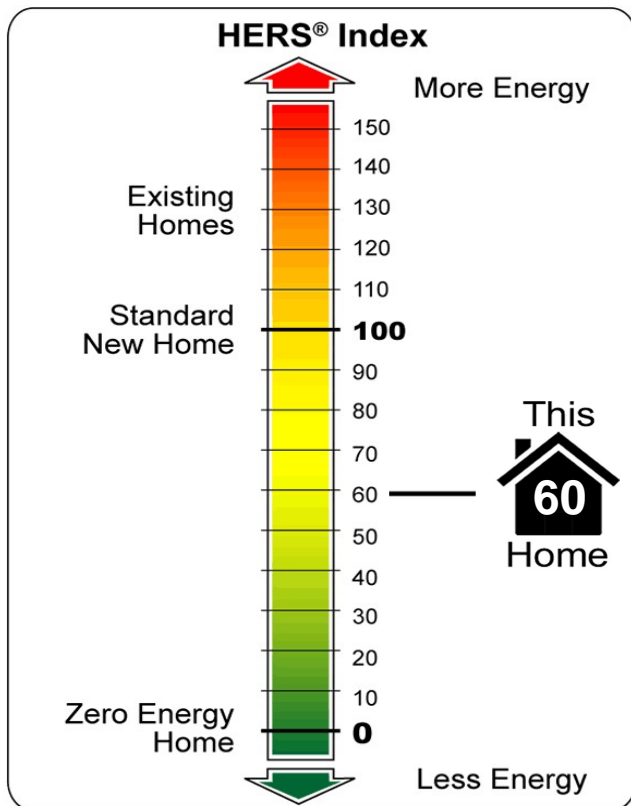
# BUILDING ENERGY RATING GUIDE



▼ Proposed Home  
 Savings = \$749

Cost Basis:  
 Florida Average  
 Florida Average  
 Statewide Prices

Electric Rate: \$0.115 /kWh  
 Gas Rate: \$1.720 /Therm  
 Oil: \$1.10/gal LP Gas: \$1.40/gal



**Ryan McCracken**  
 Certified Rater

**4281370**  
 I.D. Number

Signature

Date

*This Rating Guide is provided to you by a Home Energy Rater who is trained and certified to perform Ratings in accordance with the RESNET standard. Questions or complaints regarding this Rating may be directed to:*

*SkyeTec Energy Rating Services  
 1679 Clearlake Road  
 Cocoa, FL 32922-5703  
 (321)638-1492  
 engage@fsec.ucf.edu*

**NOTES:**

HERS is a registered Trademark of the Residential Energy Services Network (RESNET).

# Annual Energy Summary

## Wholehouse Summary

Kargar Construction Inc.  
623 Woodbridge Drive  
Ormond Beach, FL 32174-

Project Title:  
Plantation Bay Lot 36  
Building Type: Rating06

TMY\_City:FL\_DAYTONA\_BEACH\_INT  
Elec Util: Florida Average  
Gas Util: Florida Average  
Run Date:

End-Use	Energy Consumption	Annual Cost
Cooling Electric	2013 kWh	\$232
Cooling Fan	375 kWh	\$43
Mechanical Vent Fan	0 kWh	\$0
<b>Total Cooling</b>	<b>2388 kWh</b>	<b>\$275</b>
Heating Electric	616 kWh	\$71
Heating Fan/Pump	87 kWh	\$10
Mechanical Vent Fan	0 kWh	\$0
<b>Total Heating</b>	<b>703 kWh</b>	<b>\$81</b>
Hot Water	408 kWh	\$47
Hot Water Pump	0 kWh	\$0
<b>Total Hot Water</b>	<b>408 kWh</b>	<b>\$47</b>
Ceiling Fans	289 kWh	\$33
Clothes Washer	38 kWh	\$4
Dehumidifier	0 kWh	\$0
Dishwasher	141 kWh	\$16
Dryer Electric	618 kWh	\$71
Lighting	2326 kWh	\$268
Miscellaneous	2411 kWh	\$277
Pool Pump	0 kWh	\$0
Range Electric	448 kWh	\$52
Refrigerator	553 kWh	\$64
Television	620 kWh	\$71
Total (kWh)	10942 kWh	\$1259
Total (Therms)	0 Therms	\$0
Total (Oil Gallons)	0 Gallons	\$0
Total (Propane Gallons)	0 Gallons	\$0
PV Produced (kWh)	0 kWh	\$0
Assumes net metering		
<b>Total Cost</b>		<b>\$1259</b>

**Emissions** (Calculated as Total - PV Produced)

SO2 = 43.45 Lbs    NOX = 25.52 Lbs    CO2 = 7.37 Tons

# Monthly Summary Energy Use Report

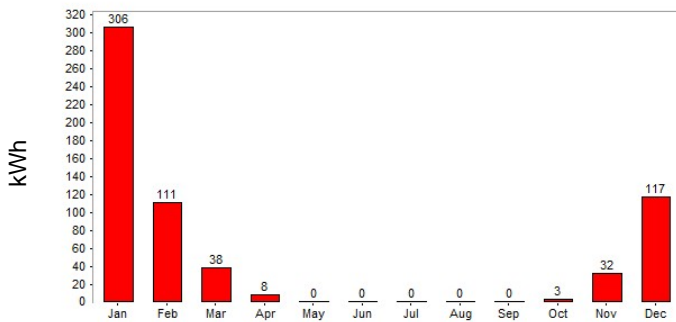
Kargar Construction Inc.  
623 Woodbridge Drive  
Ormond Beach, FL, 32174-  
Registration #:

Title: Plantation Bay Lot 36  
Rated06

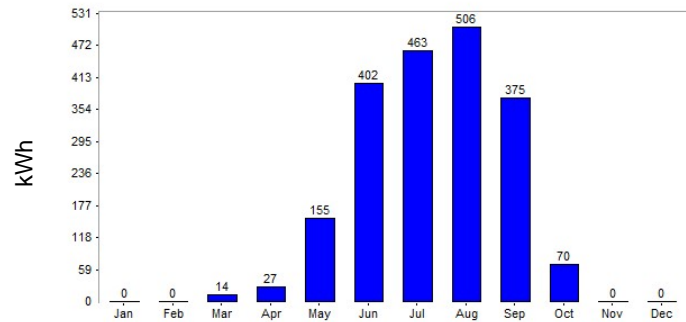
TMY City: FL\_DAYTONA\_BEAC  
Elec Util: Florida Average  
Gas Util: Florida Average  
Run Date: 04/02/2014 21:34:39

End-Use	Units	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Cooling	kWh	0.0	0.0	14.0	27.0	155.0	402.0	463.0	506.0	375.0	70.0	0.0	0.0	2013.0
Cooling Fan	kWh	0.0	0.0	3.0	5.0	29.0	74.0	86.0	94.0	71.0	13.0	0.0	0.0	375.0
Cooling Vent Fan	kWh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Heating	kWh	306.0	111.0	38.0	8.0	0.0	0.0	0.0	0.0	0.0	3.0	32.0	117.0	616.0
Heating Fan/Pump	kWh	43.0	16.0	5.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	4.0	16.0	87.0
Heating Vent Fan	kWh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Hot Water	kWh	97.6	65.4	29.0	8.4	13.9	8.4	7.4	5.9	16.6	28.1	47.1	79.8	407.7
Hot Water Pump	kWh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Ceiling Fans	kWh	0.0	0.0	32.5	31.5	32.5	31.5	32.5	32.5	31.5	32.5	31.5	0.0	289.0
Clothes Washer	kWh	3.2	2.9	3.2	3.1	3.2	3.1	3.2	3.2	3.1	3.2	3.1	3.2	37.9
Dishwasher	kWh	11.9	10.8	11.9	11.6	11.9	11.6	11.9	11.9	11.6	11.9	11.6	11.9	140.6
Dryer	kWh	52.5	47.4	52.5	50.8	52.5	50.8	52.5	52.5	50.8	52.5	50.8	52.5	618.2
Dryer	Therms	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Lighting	kWh	197.5	178.4	197.5	191.2	197.5	191.2	197.5	197.5	191.2	197.5	191.2	197.5	2325.9
Miscellaneous	kWh	204.7	184.9	204.7	198.1	204.7	198.1	204.7	204.7	198.1	204.7	198.1	204.7	2410.6
Pool Pump	kWh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Range	kWh	38.0	34.4	38.0	36.8	38.0	36.8	38.0	38.0	36.8	38.0	36.8	38.0	448.0
Range	Therms	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Refrigerator	kWh	47.0	42.4	47.0	45.4	47.0	45.4	47.0	47.0	45.4	47.0	45.4	47.0	552.8
Television	kWh	52.7	47.6	52.7	51.0	52.7	51.0	52.7	52.7	51.0	52.7	51.0	52.7	620.0
Dehumidifier	kWh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Photovoltaics	kWh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cost	\$	121.33	85.31	83.91	76.99	96.45	127.06	137.71	143.41	124.55	86.80	80.87	94.42	1259.39
Total kWh	10942		\$1259					Total Oil Gallons		0			\$0	
Total Therms	0		\$0					Total Propane Gallons		0			\$0	
Total PV Produced	0		\$0											

Heating Energy Use



Cooling Energy Use



# Monthly Summary Utility Bill Report

Kargar Construction Inc.  
623 Woodbridge Drive  
Ormond Beach, FL, 32174-  
Registration #:

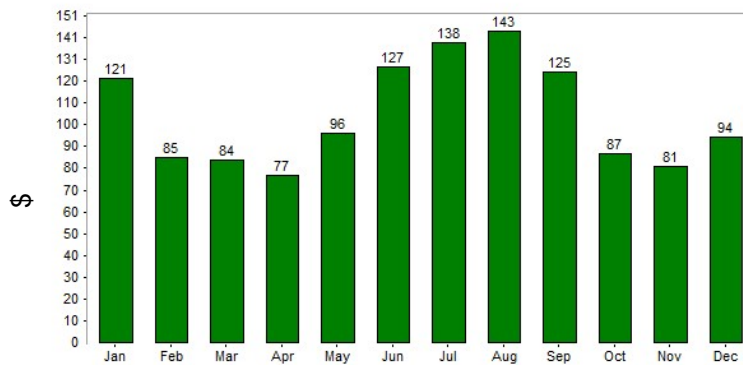
Title: Plantation Bay Lot 36  
Rated06

TMY City: FL\_DAYTONA\_BEAC  
Elec Util: Florida Average  
Gas Util: Florida Average  
Run Date: 04/02/2014 21:34:39

End-Use	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Cooling	0.00	0.00	1.61	3.11	17.84	46.27	53.29	58.24	43.16	8.06	0.00	0.00	\$231.70
Cooling Fan	0.00	0.00	0.35	0.58	3.34	8.52	9.90	10.82	8.17	1.50	0.00	0.00	\$43.16
Cooling Vent Fan	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$0.00
Heating	35.22	12.78	4.37	0.92	0.00	0.00	0.00	0.00	0.00	0.35	3.68	13.47	\$70.90
Heat Fan/Pump	4.95	1.84	0.58	0.12	0.00	0.00	0.00	0.00	0.00	0.00	0.46	1.84	\$10.01
Heat Vent Fan	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$0.00
Hot Water	11.23	7.53	3.34	0.97	1.60	0.97	0.85	0.68	1.91	3.23	5.42	9.18	\$46.93
Hot Water Pump	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$0.00
Ceiling Fans	0.00	0.00	3.75	3.63	3.75	3.63	3.75	3.75	3.63	3.75	3.63	0.00	\$33.26
Clothes Washer	0.37	0.33	0.37	0.36	0.37	0.36	0.37	0.37	0.36	0.37	0.36	0.37	\$4.36
Dishwasher	1.37	1.24	1.37	1.34	1.37	1.34	1.37	1.37	1.34	1.37	1.34	1.37	\$16.18
Dryer	6.04	5.46	6.04	5.85	6.04	5.85	6.04	6.04	5.85	6.04	5.85	6.04	\$71.15
Lighting	22.73	20.53	22.73	22.01	22.73	22.01	22.73	22.73	22.01	22.73	22.01	22.73	\$267.71
Miscellaneous	23.56	21.28	23.56	22.80	23.56	22.80	23.56	23.56	22.80	23.56	22.80	23.56	\$277.46
Pool Pump	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$0.00
Range	4.37	3.96	4.37	4.24	4.37	4.24	4.37	4.37	4.24	4.37	4.24	4.37	\$51.56
Refrigerator	5.41	4.88	5.41	5.23	5.41	5.23	5.41	5.41	5.23	5.41	5.23	5.41	\$63.63
Television	6.07	5.48	6.07	5.87	6.07	5.87	6.07	6.07	5.87	6.07	5.87	6.07	\$71.36
Dehumidifier	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$0.00
Photovoltaics	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$0.00
Cost by Month	121.33	85.31	83.91	76.99	96.45	127.06	137.71	143.41	124.55	86.80	80.87	94.42	\$1259.3

Total kWh	10942	\$1259	Total Oil Gallons	0	\$0
Total Therms	0	\$0	Total Propane Gallons	0	\$0
Total PV Produced	0	\$0			

## Monthly Utility Bill



# Financial Interest Disclosure Form

623 Woodbridge Drive, Ormond Beach, FL

RESNET ID: 355990017

As the Rater for this home, I hereby disclose that I have the following potential financial interest(s) in the outcome of this Rating or in the recommended improvements for this home (Check any or all that apply):

- I have no potential financial interest in the results of the Rating on this home.
- I am the builder or an employee of the builder of this home.
- I am the contractor or a sub-contractor, or an employee of the contractor or sub-contractor for this home. If yes, then specify trade(s) involved:
  - General contractor
  - Heating, Ventilating, and Air Conditioning (HVAC) systems contractor
  - Thermal insulation systems contractor
  - Plumbing or solar water heating contractor
  - Window supplier or installer
  - Other (please specify):
- I am the seller or his/her agent, or an employee of the seller or his/her agent for this home.
- I am the mortgagor or an employee of the mortgagor for some portion of the financed payments on this home.
- I am an employee, contractor or consultant of the electric or the natural gas utility serving this home.
- I am an owner, partner, officer or employee of a company that may choose to supply or install or offer a bid to supply or install improvements to this home.
- I am a manufacturer or supplier, or an employee of a manufacturer or supplier of product(s) that may be used to improve the efficiency of this home. Specify all products involved:
  - HVAC systems
  - Thermal insulation systems
  - Window or window shading systems
  - Hot water systems
  - Energy efficient appliances
  - Other (please specify):
- I have some other potential financial interest in the results of this Rating. (Please fully specify the nature of the financial interest):

Ryan McCracken , \_\_\_\_\_

Rater's Printed Name & Signature

4281370 \_\_\_\_\_

Certification No.

\_\_\_\_\_  
Date

# RESNET HOME ENERGY RATING

## Standard Disclosure

**For home located at:** 623 Woodbridge Drive

**City:** Ormond Beach

**State:** FL

RESNET ID: 355990017

1.  The Rater or the Rater's employer is receiving a fee for providing the rating on this home.
2. In addition to the rating, the Rater or Rater's employer has also provided the following consulting services for this home:

- A. Mechanical system design
- B. Moisture control or indoor air quality consulting
- C. Performance testing and/or commissioning other than required for the rating itself
- D. Training for sales or construction personnel
- E. Other (specify) \_\_\_\_\_

3. The Rater or Rater's employer is:

- A. The seller of this home or their agent
- B. The mortgagor for some portion of the financed payments on this home
- C. An employee, contractor or consultant of the electric and/or natural gas utility serving this home

4. The Rater or Rater's employer is a supplier or installer of products, which may include:

	Installed in this home by:	OR	Is in the business of:
HVAC systems	<input type="checkbox"/> Rater <input type="checkbox"/> Employer		<input type="checkbox"/> Rater <input type="checkbox"/> Employer
Thermal insulation systems	<input type="checkbox"/> Rater <input type="checkbox"/> Employer		<input type="checkbox"/> Rater <input type="checkbox"/> Employer
Air sealing of envelope or duct systems	<input type="checkbox"/> Rater <input type="checkbox"/> Employer		<input type="checkbox"/> Rater <input type="checkbox"/> Employer
Windows or window shading systems	<input type="checkbox"/> Rater <input type="checkbox"/> Employer		<input type="checkbox"/> Rater <input type="checkbox"/> Employer
Energy efficient appliances	<input type="checkbox"/> Rater <input type="checkbox"/> Employer		<input type="checkbox"/> Rater <input type="checkbox"/> Employer
Construction (builder, developer, construction contractor, etc.)	<input type="checkbox"/> Rater <input type="checkbox"/> Employer		<input type="checkbox"/> Rater <input type="checkbox"/> Employer
Other (specify): _____	<input type="checkbox"/> Rater <input type="checkbox"/> Employer		<input type="checkbox"/> Rater <input type="checkbox"/> Employer

Ryan McCracken

Rater's Printed Name

4281370

Certification #

\_\_\_\_\_  
Rater's Signature

3/28/2014

Date

I attest that the above information is true and correct to the best of my knowledge. As a Rater or Rating Provider I abide by the rating quality control provisions of the Mortgage Industry National Home Energy Rating Standard as set forth by the Residential Energy Services Network (RESNET). The national rating quality control provisions of the rating standard are contained in Chapter One 4.C.8. of the standard and are posted at <http://www.natresnet.org/accred/standards.pdf>

RESNET Form 03001-1



# ENERGY STAR Certified Homes, Version 3 (Rev. 07)

## Thermal Enclosure System Rater Checklist

Home Address: 623 Woodbridge Drive		City: Ormond Beach	State: FL	Zip Code: 32174	
<b>1. High-Performance Fenestration</b>		<b>Must Correct</b>	<b>Builder Verified<sup>1</sup></b>	<b>Rater Verified</b>	<b>N/A</b>
1.1 <i>Prescriptive Path</i> : Fenestration shall meet or exceed ENERGY STAR requirements <sup>2</sup>		<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
1.2 <i>Performance Path</i> : Fenestration shall meet or exceed 2009 IECC requirements <sup>2</sup>		<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<b>2. Quality-Installed Insulation</b>					
2.1 Ceiling, wall, floor, and slab insulation levels shall comply with one of the following options:					
2.1.1 Meet or exceed 2009 IECC levels <sup>3,4,5</sup> <b>OR</b> ;		<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
2.1.2 Achieve $\leq$ 133% of the total UA resulting from the U-factors in 2009 IECC Table 402.1.3, excluding fenestration and per guidance in Footnote 3d, AND home shall achieve $\leq$ 50% of the infiltration rate in Exhibit 1 of the National Program Requirements <sup>4,5</sup>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
2.2 All ceiling, wall, floor, and slab insulation shall achieve RESNET-defined Grade I installation or, alternatively, Grade II for surfaces that contain a layer of continuous, air impermeable insulation $\geq$ R-3 in Climate Zones 1 to 4, $\geq$ R-5 in Climate Zones 5 to 8		<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<b>3. Fully-Aligned Air Barriers<sup>6</sup></b>					
At each insulated location noted below, a complete air barrier shall be provided that is fully aligned with the insulation as follows:					
<ul style="list-style-type: none"> <li>• At interior or exterior surface of ceilings in Climate Zones 1-3; at interior surface of ceilings in Climate Zones 4-8. Also, include barrier at interior edge of attic eave in all climate zones using a wind baffle that extends to the full height of the insulation. Include a baffle in every bay or a tabbed baffle in each bay with a soffit vent that will also prevent wind washing of insulation in adjacent bays</li> <li>• At exterior surface of walls in all climate zones; and also at interior surface of walls for Climate Zones 4-8<sup>7</sup></li> <li>• At interior surface of floors in all climate zones, including supports to ensure permanent contact and blocking at exposed edge<sup>8,9</sup></li> </ul>					
3.1 Walls <sup>10</sup>					
3.1.1 Walls behind showers and tubs		<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
3.1.2 Walls behind fireplaces		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
3.1.3 Attic knee walls <sup>11</sup>		<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
3.1.4 Skylight shaft walls		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
3.1.5 Wall adjoining porch roof		<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
3.1.6 Staircase walls		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
3.1.7 Double walls		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
3.1.8 Garage rim / band joist adjoining conditioned space		<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
3.1.9 All other exterior walls		<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
3.2 Floors					
3.2.1 Floor above garage		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
3.2.2 Cantilevered floor		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
3.2.3 Floor above unconditioned basement or unconditioned crawlspace		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
3.3 Ceilings <sup>10</sup>					
3.3.1 Dropped ceiling / soffit below unconditioned attic		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
3.3.2 All other ceilings		<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<b>4. Reduced Thermal Bridging</b>					
4.1 For insulated ceilings with attic space above (i.e., non-cathedralized), Grade I insulation extends to the inside face of the exterior wall below at these levels: CZ 1-5: $\geq$ R-21; CZ 6-8: $\geq$ R-30 <sup>12</sup>		<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
4.2 For slabs on grade in CZ 4 and higher, 100% of slab edge insulated to $\geq$ R-5 at the depth specified by the 2009 IECC and aligned with thermal boundary of the walls <sup>4,5</sup>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
4.3 Insulation beneath attic platforms (e.g., HVAC platforms, walkways) $\geq$ R-21 in CZ 1-5; $\geq$ R-30 in CZ 6-8		<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
4.4 Reduced thermal bridging at above-grade walls separating conditioned from unconditioned space (rim / band joists exempted) using one of the following options: <sup>13</sup>					
4.4.1 Continuous rigid insulation, insulated siding, or combination of the two; $\geq$ R-3 in Climate Zones 1 to 4, $\geq$ R-5 in Climate Zones 5 to 8 <sup>14,15,16</sup> , <b>OR</b> ;		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
4.4.2 Structural Insulated Panels (SIPs) <sup>14</sup> , <b>OR</b> ;		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
4.4.3 Insulated Concrete Forms (ICFs) <sup>14</sup> , <b>OR</b> ;		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
4.4.4 Double-wall framing <sup>14,17</sup> , <b>OR</b> ;		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
4.4.5 Advanced framing, including all of the items below:					
4.4.5a All corners insulated $\geq$ R-6 to edge <sup>18</sup> , <b>AND</b> ;		<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
4.4.5b All headers above windows & doors insulated $\geq$ R-3 for 2x4 framing or equivalent cavity width, and $\geq$ R-5 for all other assemblies (e.g., with 2x6 framing) <sup>19</sup> , <b>AND</b> ;		<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
4.4.5c Framing limited at all windows & doors to one pair of king studs, plus one pair of jack studs per window opening to support the header and sill <sup>20</sup> , <b>AND</b> ;		<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
4.4.5d All interior / exterior wall intersections insulated to the same R-value as the rest of the exterior wall <sup>21</sup> , <b>AND</b> ;		<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
4.4.5e Minimum stud spacing of 16 in. o.c. for 2x4 framing in all Climate Zones and, in Climate Zones 5 through 8, 24 in. o.c. for 2x6 framing <sup>22</sup>		<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>





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5. Air Sealing	Must Correct	Builder Verified <sup>1</sup>	Rater Verified	N/A
5.1 Penetrations to unconditioned space fully sealed with solid blocking or flashing as needed and gaps sealed with caulk or foam				
5.1.1 Duct / flue shaft	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
5.1.2 Plumbing / piping	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
5.1.3 Electrical wiring	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
5.1.4 Bathroom and kitchen exhaust fans	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
5.1.5 Recessed lighting fixtures adjacent to unconditioned space ICAT labeled and fully gasketed. Also, if in insulated ceiling without attic above, exterior surface of fixture insulated to $\geq R-10$ in CZ 4 and higher to minimize condensation potential.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
5.1.6 Light tubes adjacent to unconditioned space include lens separating unconditioned and conditioned space and are fully gasketed <sup>23</sup>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
5.2 Cracks in the building envelope fully sealed				
5.2.1 All above-grade sill plates adjacent to conditioned space sealed to foundation or sub-floor with caulk, foam, or equivalent material. Foam gasket also placed beneath above-grade sill plate if resting atop concrete or masonry and adjacent to conditioned space <sup>24, 25</sup>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
5.2.2 At top of walls adjoining unconditioned spaces, continuous top plates or sealed blocking using caulk, foam, or equivalent material	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
5.2.3 Drywall sealed to top plate at all unconditioned attic / wall interfaces using caulk, foam, drywall adhesive (but not other construction adhesives), or equivalent material. Either apply sealant directly between drywall and top plate or to the seam between the two from the attic above.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
5.2.4 Rough opening around windows & exterior doors sealed with caulk or foam <sup>26</sup>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
5.2.5 Marriage joints between modular home modules at all exterior boundary conditions fully sealed with gasket and foam	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
5.2.6 All seams between Structural Insulated Panels (SIPs) foamed and / or taped per manufacturer's instructions	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
5.2.7 In multifamily buildings, the gap between the common wall (e.g. the drywall shaft wall) and the structural framing between units fully sealed at all exterior boundaries	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
5.3 Other openings				
5.3.1 Doors adjacent to unconditioned space (e.g., attics, garages, basements) or ambient conditions made substantially air-tight with weatherstripping or equivalent gasket	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
5.3.2 Attic access panels and drop-down stairs equipped with a durable $\geq R-10$ insulated cover that is gasketed (i.e., not caulked) to produce continuous air seal when occupant is not accessing the attic <sup>27</sup>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
5.3.3 Whole-house fans equipped with a durable $\geq R-10$ insulated cover that is gasketed and either installed on the house side or mechanically operated <sup>27</sup>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Rater Name: <u>Ryan Winn</u> Rater Pre-Drywall Inspection Date: <u>01/11/2014</u> Rater Initials: _____				
Rater Name: <u>Ryan Winn</u> Rater Final Inspection Date: <u>03/19/2014</u> Rater Initials: _____				
Builder Employee: <u>Dave Perez</u> Builder Inspection Date: <u>03/19/2014</u> Builder Initials: _____				

**Notes:**

1. At the discretion of the Rater, the builder may verify up to eight items specified in this Checklist. When exercised, the builder's responsibility will be formally acknowledged by the builder signing off on the checklist for the item(s) that they verified.
2. *For Prescriptive Path:* All windows, doors, and skylights shall meet or exceed ENERGY STAR Program Requirements for Residential Windows, Doors, and Skylights – Version 5.0 as outlined at [www.energystar.gov/windows](http://www.energystar.gov/windows). *For Performance Path:* All windows, doors and skylights shall meet or exceed the component U-factor and SHGC requirements specified in the 2009 IECC – Table 402.1.1. If no NFRC rating is noted on the window or in product literature (e.g., for site-built fenestration), select the U-factor and SHGC value from Tables 4 and 14, respectively, in 2005 ASHRAE Fundamentals, Chapter 31. Select the highest U-factor and SHGC value among the values listed for the known window characteristics (e.g., frame type, number of panes, glass color, and presence of low-e coating). Note that the U-factor requirement applies to all fenestration while the SHGC only applies to the glazed portion. The following exceptions apply:
  - a. An area-weighted average of fenestration products shall be permitted to satisfy the U-factor requirements;
  - b. An area-weighted average of fenestration products  $\geq 50\%$  glazed shall be permitted to satisfy the SHGC requirements;
  - c. 15 square feet of glazed fenestration per dwelling unit shall be exempt from the U-factor and SHGC requirements, and shall be excluded from area-weighted averages calculated using a) and b), above;
  - d. One side-hinged opaque door assembly up to 24 square feet in area shall be exempt from the U-factor requirements and shall be excluded from area-weighted averages calculated using a) and b), above;
  - e. Fenestration utilized as part of a passive solar design shall be exempt from the U-factor and SHGC requirements, and shall be excluded from area-weighted averages calculated using a) and b), above. Exempt windows shall be facing within 45 degrees of true South and directly coupled to thermal storage mass that has a heat capacity  $> 20 \text{ btu} / \text{ft}^3 \times ^\circ\text{F}$  and provided in a ratio of at least 3 sq. ft. per sq. ft. of South facing fenestration. Generally, thermal mass materials will be at least 2 in. thick.



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3. Insulation levels in a home shall meet or exceed the component insulation requirements in the 2009 IECC - Table 402.1.1. The following exceptions apply:
- Steel-frame ceilings, walls, and floors shall meet the insulation requirements of the 2009 IECC – Table 402.2.5. In CZ 1 and 2, the continuous insulation requirements in this table shall be permitted to be reduced to R-3 for steel-frame wall assemblies with studs spaced at 24 in. on center. This exception shall not apply if the alternative calculations in d) are used;
  - For ceilings with attic spaces, R-30 shall satisfy the requirement for R-38 and R-38 shall satisfy the requirement for R-49 wherever the full height of uncompressed insulation at the lower R-value extends over the wall top plate at the eaves. This exemption shall not apply if the alternative calculations in d) are used;
  - For ceilings without attic spaces, R-30 shall satisfy the requirement for any required value above R-30 if the design of the roof / ceiling assembly does not provide sufficient space for the required insulation value. This exemption shall be limited to 500 sq. ft. or 20% of the total insulated ceiling area, whichever is less. This exemption shall not apply if the alternative calculations in d) are used;
  - An alternative equivalent U-factor or total UA calculation may also be used to demonstrate compliance, as follows:  
An assembly with a U-factor equal or less than specified in 2009 IECC Table 402.1.3 complies.  
A total building thermal envelope UA that is less than or equal to the total UA resulting from the U-factors in Table 402.1.3 also complies. The insulation levels of all non-fenestration components (i.e., ceilings, walls, floors, and slabs) can be traded off using the UA approach under both the Prescriptive and the Performance Path. Note that fenestration products (i.e., windows, skylights, doors) shall not be included in this calculation. Also, note that while ceiling and slab insulation can be included in trade-off calculations, Items 4.1 through 4.3 of the Checklist shall be met regardless of the UA tradeoffs calculated. The UA calculation shall be done using a method consistent with the ASHRAE Handbook of Fundamentals and shall include the thermal bridging effects of framing materials. The calculation for a steel-frame envelope assembly shall use the ASHRAE zone method or a method providing equivalent results, and not a series-parallel path calculation method.
4. Consistent with the 2009 IECC, slab edge insulation is only required for slab-on-grade floors with a floor surface less than 12 inches below grade. Slab insulation shall extend to the top of the slab to provide a complete thermal break. If the top edge of the insulation is installed between the exterior wall and the edge of the interior slab, it shall be permitted to be cut at a 45-degree angle away from the exterior wall. Alternatively, the thermal break is permitted to be created using  $\geq$  R-3 rigid insulation on top of an existing slab (e.g., in a home undergoing a gut rehabilitation). In such cases, up to 10% of the slab surface is permitted to not be insulated (e.g., for sleepers, for sill plates). Insulation installed on top of slab shall be covered by a durable floor surface (e.g., hardwood, tile, carpet).
5. Where an insulated wall separates a garage, patio, porch, or other unconditioned space from the conditioned space of the house, slab insulation shall also be installed at this interface to provide a thermal break between the conditioned and unconditioned slab. Where specific details cannot meet this requirement, partners shall provide the detail to EPA to request an exemption prior to the home's certification. EPA will compile exempted details and work with industry to develop feasible details for use in future revisions to the program. A list of currently exempted details is available at: [www.energystar.gov/slabeledge](http://www.energystar.gov/slabeledge).
6. For purposes of this Checklist, an air barrier is defined as any durable solid material that blocks air flow between conditioned space and unconditioned space, including necessary sealing to block excessive air flow at edges and seams and adequate support to resist positive and negative pressures without displacement or damage. EPA recommends, but does not require, rigid air barriers.  
Open-cell or closed-cell foam shall have a finished thickness  $\geq$  5.5 in. or 1.5 in., respectively, to qualify as an air barrier unless the manufacturer indicates otherwise.  
If flexible air barriers such as house wrap are used, they shall be fully sealed at all seams and edges and supported using fasteners with caps or heads  $\geq$  1 in. diameter unless otherwise indicated by the manufacturer. Flexible air barriers shall not be made of kraft paper, paper-based products, or other materials that are easily torn. If polyethylene is used, its thickness shall be  $\geq$  6 mil.
7. EPA highly recommends, but does not require, inclusion of an interior air barrier at rim / band joists in Climate Zones 4 through 8.
8. Examples of supports necessary for permanent contact include staves for batt insulation or netting for blown-in insulation. Alternatively, batts that completely fill floor cavities enclosed on all six sides may be used to meet Items 2.2 and 3.2, even when compression occurs due to excess insulation, as long as the R-value of the batts has been appropriately assessed based on manufacturer guidance and the only defect preventing the insulation from achieving the required installation grade is the compression caused by the excess insulation.
9. Fully-aligned air barriers may be installed at the exterior surface of the floor cavity in all Climate Zones if the insulation is installed in contact with this exterior air barrier and the perimeter rim and band joists of the floor cavity are also sealed and insulated to comply with the fully-aligned air barrier requirements for walls.
10. All insulated vertical surfaces are considered walls (e.g., above and below grade exterior walls, knee walls) and must meet the air barrier requirements for walls, with the exception of adiabatic walls in multifamily dwellings. All insulated ceiling surfaces, regardless of slope (e.g., cathedral ceilings, tray ceilings, conditioned attic roof decks, flat ceilings, sloped ceilings), must meet the requirements for ceilings.
11. Exterior air barriers are not required for attic knee walls that are  $\leq$  24 in. in height if an interior air barrier is provided and insulation extends in all directions from the top of this interior air barrier into unconditioned space at the following levels: CZ 1-5:  $\geq$  R-21; CZ 6-8:  $\geq$  R-30.
12. The minimum designated R-values must be achieved regardless of the trade-offs determined using an equivalent U-factor or UA alternative calculation, with the following exception:  
For homes permitted through 12/31/2012: CZ 1-5: For spaces that provide less than 5.5 in. of clearance, R-15 Grade I insulation is permitted. CZ 6-8: For spaces that provide less than 7.0 in. of clearance, R-21 Grade I insulation is permitted.  
For homes permitted on or after 01/01/2013: Homes shall achieve Item 4.1 without exception.  
Note that if the minimum designated values are used, then higher insulation values may be needed elsewhere to meet Item 2.1. Also, note that these requirements can be met by using any available strategy, such as a raised-heel truss, alternate framing that provides adequate space, and / or high-density insulation.
13. Mass walls utilized as the thermal mass component of a passive solar design (e.g., a Trombe wall) are exempt from this Item. To be eligible for this exemption, the passive solar design shall be comprised of the following five components: an aperture or collector, an absorber, thermal mass, a distribution system, and a control system. For more information, see:



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[http://energy.gov/sites/prod/files/guide\\_to\\_passive\\_solar\\_home\\_design.pdf](http://energy.gov/sites/prod/files/guide_to_passive_solar_home_design.pdf).

Mass walls that are not part of a passive solar design (e.g., CMU block or log home enclosure) shall either utilize the strategies outlined in Item 4.4 or the pathway in the assembly with the least thermal resistance, as determined using a method consistent with the 2009 ASHRAE Handbook of Fundamentals, shall provide  $\geq 50\%$  of the applicable assembly resistance, defined as the reciprocal of the mass wall equivalent U-factor in the 2009 IECC – Table 402.1.3. Documentation identifying the pathway with the least thermal resistance and its resistance value shall be collected by the Rater and any Builder Verified or Rater Verified box under Item 4.4 shall be checked.

14. Up to 10% of the total exterior wall surface area is exempted from the reduced thermal bridging requirements to accommodate intentional designed details (e.g., architectural details such as thermal fins, wing walls, or masonry fireplaces; structural details, such as steel columns). It shall be apparent to the Rater that the exempted areas are intentional designed details or the exempted area shall be documented in a plan provided by the builder, architect, designer, or engineer. The Rater need not evaluate the necessity of the designed detail to certify the home.
15. If used, insulated siding shall be attached directly over a water-resistive barrier and sheathing. In addition, it shall provide the required R-value as demonstrated through either testing in accordance with ASTM C 1363 or by attaining the required R-value at its minimum thickness. Insulated sheathing rated for water protection can be used as a water resistant barrier if all seams are taped and sealed. If non-insulated structural sheathing is used at corners, advanced framing details listed under Item 4.4.5 shall be met for those wall sections.
16. Steel framing shall meet the reduced thermal bridging requirements by complying with Item 4.4.1 of the Checklist.
17. Double-wall framing is defined as any framing method that ensures a continuous layer of insulation covering the studs to at least the R-value required in Item 4.4.1 of the Checklist, such as offset double-stud walls, aligned double-stud walls with continuous insulation between the adjacent stud faces, or single-stud walls with 2x2 or 2x3 cross-framing. In all cases, insulation shall fill the entire wall cavity from the interior to exterior sheathing except at windows, doors and other penetrations.
18. All exterior corners shall be constructed to allow access for the installation of  $\geq R-6$  insulation that extends to the exterior wall sheathing. Examples of compliance options include standard-density insulation with alternative framing techniques, such as using three studs per corner, or high-density insulation (e.g., spray foam) with standard framing techniques.
19. Compliance options include continuous rigid insulation sheathing, SIP headers, other prefabricated insulated headers, single-member or two-member headers with insulation either in between or on one side, or an equivalent assembly, except where a framing plan provided by the builder, architect, designer, or engineer indicates that full-depth solid headers are to be used. The Rater need not evaluate the structural necessity of the details in the framing plan to certify the home. Also, the framing plan need only encompass the details in question and not necessarily the entire home. R-value requirement refers to manufacturer's nominal insulation value.
20. Additional jack studs shall be used only as needed for structural support and cripple studs only as needed to maintain on-center spacing of studs.
21. Insulation shall run behind interior / exterior wall intersections using ladder blocking, full length 2x6 or 1x6 furring behind the first partition stud, drywall clips, or other equivalent alternative.
22. In Climate Zones 5 - 8, a minimum stud spacing of 16 in. o.c. is permitted to be used with 2x6 framing if  $\geq R-20.0$  wall cavity insulation is achieved. Regardless, all vertical framing members shall either be on-center or have an alternative structural purpose (e.g., framing members at the edge of pre-fabricated panels) that is apparent to the Rater or documented in a framing plan that encompasses that member and is provided by the builder, architect, designer, or engineer. The Rater need not evaluate the structural necessity of the framing plan to certify the home. However, all 2x6 framing with stud spacing of 16 in. o.c. in Climate Zones 5 - 8 shall have  $\geq R-20.0$  wall cavity insulation installed regardless of any framing plan or alternative equivalent total UA calculation.
23. Light tubes that do not include a gasketed lens are required to be sealed and insulated  $\geq R-6$  for the length of the tube.
24. Existing sill plates (e.g., in a home undergoing a gut rehabilitation) on the interior side of structural masonry or monolithic walls are exempt from this Item. In addition, other existing sill plates resting atop concrete or masonry and adjacent to conditioned space are permitted, in lieu of using a gasket, to be sealed with caulk, foam, or equivalent material at both the interior seam between the sill plate and the subfloor and the seam between the top of the sill plate and the sheathing.
25. In Climate Zones 1 through 3, a continuous stucco cladding system adjacent to sill and bottom plates is permitted to be used in lieu of sealing plates to foundation or sub-floor with caulk, foam, or equivalent material.
26. In Climate Zones 1 through 3, a continuous stucco cladding system sealed to windows and doors is permitted to be used in lieu of sealing rough openings with caulk or foam.
27. Examples of durable covers include, but are not limited to, pre-fabricated covers with integral insulation, rigid foam adhered to cover with adhesive, or batt insulation mechanically fastened to the cover (e.g., using bolts, metal wire, or metal strapping).