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FORM 405-10

FLORIDA ENERGY EFFICIENCY CODE FOR BUILDING CONSTRUCTION

Florida Department of Business and Professional Regulation - Residential Performance Method

Project Name:	Schnable Residence	Builder Name:	Dan Schnabel
Street:	575 SW Weatherby Place	Permit Office:	Columbia County
City, State, Zip:	Lake City , FL ,	Permit Number:	30620
Owner:	Dan Schnabel	Jurisdiction:	221000
Design Location:	FL, Gainesville		

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	3		
5. Is this a worst case?	Yes		
6. Conditioned floor area above grade (ft²)	2813		
Conditioned floor area below grade (ft²)	0		

7. Windows (228.0 sqft.)	Description	Area
a. U-Factor:	Dbl, U=0.55	228.00 ft²
SHGC:	SHGC=0.50	
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:		0.500

8. Floor Types (2813.0 sqft.)	Insulation	Area
a. Slab-On-Grade Edge Insulation	R=0.0	1838.00 ft²
b. Floor Over Other Space	R=19.0	975.00 ft²
c. N/A	R=	ft²

9. Wall Types (2904.4 sqft.)	Insulation	Area
a. Concrete Block - Int Insul, Exterior	R=7.0	2904.40 ft²
b. N/A	R=	ft²
c. N/A	R=	ft²
d. N/A	R=	ft²

10. Ceiling Types (1538.0 sqft.)	Insulation	Area
a. Under Attic (Vented)	R=30.0	1538.00 ft²
b. N/A	R=	ft²
c. N/A	R=	ft²

11. Ducts	R	ft²
a. Sup: 1st Floor, Ret: 1st Floor, AH: 1st Floor	6	281.3
b. Sup: Attic, Ret: Attic, AH: 2nd Floor	6	281.3

12. Cooling systems	kBtu/hr	Efficiency
a. Central Unit	30.0	SEER:14.00
b. Central Unit	18.0	SEER:14.00

13. Heating systems	kBtu/hr	Efficiency
a. Electric Heat Pump	30.0	HSPF:7.70
b. Electric Heat Pump	18.0	HSPF:7.70

14. Hot water systems

a. Electric — Cap: 50 gallons, EF: 0.920

b. Conservation features: None

15. Credits — CF, Pstat

Glass/Floor Area: 0.081

Total Proposed Modified Loads: 43.40

Total Standard Reference Loads: 56.69

PASS

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

PREPARED BY: William H. [signature]

DATE: 10/16/12

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.

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

BUILDING OFFICIAL: ____________________

DATE: ____________________

- **Compliance requires completion of a Florida Air Barrier and Insulation Inspection Checklist**

COLUMBIA COUNTY BUILDING DEPARTMENT — Received for FILE COPY — Code Compliance — PLANS EXAMINER

PROJECT

Title:	Schnable Residence	Bedrooms:	3	Address Type:	Street Address
Building Type:	User	Conditioned Area:	2813	Lot #	
Owner:	Dan Schnabel	Total Stories:	2	Block/SubDivision:	
# of Units:	1	Worst Case:	Yes	PlatBook:	
Builder Name:	Dan Schnabel	Rotate Angle:	90	Street:	575 SW Weatherby Plac
Permit Office:	Columbia County	Cross Ventilation:		County:	Columbia
Jurisdiction:		Whole House Fan:		City, State, Zip:	Lake City , FL ,
Family Type:	Single-family				
New/Existing:	New (From Plans)				
Comment:					

CLIMATE

✓	Design Location	TMY Site	IECC Zone	Design Temp 97.5 %	Design Temp 2.5 %	Int Design Temp Winter	Int Design Temp Summer	Heating Degree Days	Design Moisture	Daily Temp Range
———	FL, Gainesville	FL_GAINESVILLE_REGI	2	32	92	70	75	1305.5	51	Medium

BLOCKS

Number	Name	Area	Volume
1	Block1	1838	17148.5390
2	Block2	975	7800

SPACES

Number	Name	Area	Volume	Kitchen	Occupants	Bedrooms	Infil ID	Finished	Cooled	Heated
1	1st Floor	1838	17148.54	Yes	2	1	1	Yes	Yes	Yes
2	2nd Floor	975	7800	No	2	2	1	Yes	Yes	Yes

FLOORS

✓	#	Floor Type	Space	Perimeter	Perimeter R-Value	Area	Joist R-Value	Tile	Wood	Carpet
———	1	Slab-On-Grade Edge Insulation	1st Floor	154 ft	0	1838 ft²	----	0.5	0.25	0.25
———	2	Floor Over Other Space	2nd Floor	----	----	975 ft²	19	0.1	0.5	0.4

ROOF

✓	#	Type	Materials	Roof Area	Gable Area	Roof Color	Solar Absor.	SA Tested	Emitt	Emitt Tested	Deck Insul.	Pitch (deg)
———	1	Hip	Metal	2056 ft²	0 ft²	Medium	0.96	No	0.9	No	0	26.6

ATTIC

✓	#	Type	Ventilation	Vent Ratio (1 in)	Area	RBS	IRCC
———	1	Full attic	Vented	300	1838 ft²	N	N

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CEILING

√	#	Ceiling Type	Space	R-Value	Area	Framing Frac	Truss Type
_____	1	Under Attic (Vented)	1st Floor	30	563 ft²	0.11	Wood
_____	2	Under Attic (Vented)	2nd Floor	30	975 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=>E	Exterior	Concrete Block - Int Insul	1st Floor	7	54		9	4	504 ft²		0	0.75	0
____	2	S=>W	Exterior	Concrete Block - Int Insul	1st Floor	7	54		9	4	504 ft²		0	0.75	0
____	3	E=>S	Exterior	Concrete Block - Int Insul	1st Floor	7	46	2	9	4	430.8888		0	0.75	0
____	4	W=>N	Exterior	Concrete Block - Int Insul	1st Floor	7	46	2	9	4	430.8888		0	0.75	0
____	5	N=>E	Exterior	Concrete Block - Int Insul	2nd Floor	7	41	4	8		330.6666		0	0.75	0
____	6	S=>W	Exterior	Concrete Block - Int Insul	2nd Floor	7	41	4	8		330.6666		0	0.75	0
____	7	E=>S	Exterior	Concrete Block - Int Insul	2nd Floor	7	23	4	8		186.6666		0	0.75	0
____	8	W=>N	Exterior	Concrete Block - Int Insul	2nd Floor	7	23	4	8		186.6666		0	0.75	0

DOORS

√	#	Ornt	Door Type	Space	Storms	U-Value	Width Ft	Width In	Height Ft	Height In	Area
_____	1	S=>W	Insulated	1st Floor	None	0.460000	3		6	8	20 ft²
_____	2	S=>W	Wood	1st Floor	None	0.460000	3		6	8	40 ft²
_____	3	S=>W	Wood	1st Floor	None	0.460000	3		6	8	40 ft²
_____	4	E=>S	Wood	1st Floor	None	0.460000	3		6	8	20 ft²
_____	5	W=>N	Wood	1st Floor	None	0.460000	3		6	8	40 ft²
_____	6	E=>S	Wood	1st Floor	None	0.460000	3		6	8	40 ft²
_____	7	S=>W	Insulated	1st Floor	None	0.460000	3		6	8	40 ft²

WINDOWS

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

√	#	Ornt	Wall ID	Frame	Panes	NFRC	U-Factor	SHGC	Area	Overhang Depth	Overhang Separation	Int Shade	Screening
_____	1	N=>E	1	Metal	Double (Tinted)	Yes	0.55	0.5	16 ft²	2 ft 0 in	10 ft 0 in	Drapes/blinds	None
_____	2	N=>E	1	Metal	Double (Tinted)	Yes	0.55	0.5	9 ft²	2 ft 0 in	10 ft 0 in	Drapes/blinds	None
_____	3	S=>W	2	Metal	Double (Tinted)	Yes	0.55	0.5	36 ft²	2 ft 0 in	2 ft 0 in	Drapes/blinds	None
_____	4	E=>S	3	Metal	Double (Tinted)	Yes	0.55	0.5	9 ft²	2 ft 0 in	10 ft 0 in	Drapes/blinds	None
_____	5	E=>S	3	Metal	Double (Tinted)	Yes	0.55	0.5	4 ft²	2 ft 0 in	10 ft 0 in	Drapes/blinds	None
_____	6	W=>N	4	Metal	Double (Tinted)	Yes	0.55	0.5	6 ft²	2 ft 0 in	2 ft 0 in	Drapes/blinds	None
_____	7	N=>E	5	Metal	Double (Tinted)	Yes	0.55	0.5	36 ft²	2 ft 0 in	2 ft 0 in	Drapes/blinds	None
_____	8	N=>E	5	Metal	Double (Tinted)	Yes	0.55	0.5	6 ft²	2 ft 0 in	2 ft 0 in	Drapes/blinds	None
_____	9	S=>W	6	Metal	Double (Tinted)	Yes	0.55	0.5	72 ft²	2 ft 0 in	2 ft 0 in	Drapes/blinds	None
_____	10	E=>S	7	Metal	Double (Tinted)	Yes	0.55	0.5	15 ft²	2 ft 0 in	2 ft 0 in	Drapes/blinds	None
_____	11	W=>N	8	Metal	Double (Tinted)	Yes	0.55	0.5	15 ft²	2 ft 0 in	2 ft 0 in	Drapes/blinds	None
_____	12	W=>N	8	Metal	Double (Tinted)	Yes	0.55	0.5	4 ft²	2 ft 0 in	2 ft 0 in	Drapes/blinds	None

INFILTRATION

#	Scope	Method	SLA	CFM 50	ELA	EqLA	ACH	ACH 50
1	Wholehouse	Best Guess	0.000500	3689.27	202.536	380.898	0.47399	8.87251

HEATING SYSTEM

√	#	System Type	Subtype	Efficiency	Capacity	Block	Ducts
_____	1	Electric Heat Pump	None	HSPF: 7.7	30 kBtu/hr	1	sys#1
_____	2	Electric Heat Pump	None	HSPF: 7.7	18 kBtu/hr	2	sys#2

COOLING SYSTEM

√	#	System Type	Subtype	Efficiency	Capacity	Air Flow	SHR	Block	Ducts
_____	1	Central Unit	Split	SEER: 14	30 kBtu/hr	900 cfm	0.75	1	Ductless
_____	2	Central Unit	None	SEER: 14	18 kBtu/hr	540 cfm	0.75	2	sys#2

HOT WATER SYSTEM

√	#	System Type	SubType	Location	EF	Cap	Use	SetPnt	Conservation
_____	1	Electric	None	1st Floor	0.92	50 gal	60 gal	120 deg	None

SOLAR HOT WATER SYSTEM

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

DUCTS

√	#	---- Supply ---- Location	R-Value	Area	---- Return ---- Location	Area	Leakage Type	Air Handler	CFM 25	Percent Leakage	QN	RLF	HVAC # Heat	Cool
_____	1	1st Floor	6	281.3 ft²	1st Floor	70.325 f	Default Leakage	1st Floor	(Default) c	(Default) %			1	No
_____	2	Attic	6	281.3 ft²	Attic	70.325 f	Default Leakage	2nd Floor	(Default) c	(Default) %			2	2

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]	[ ]

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Thermostat Schedule: HERS 2006 Reference		Hours											
Schedule Type		1	2	3	4	5	6	7	8	9	10	11	12
Cooling (WD)	AM	78	78	78	78	78	78	78	78	80	80	80	80
	PM	80	80	78	78	78	78	78	78	78	78	78	78
Cooling (WEH)	AM	78	78	78	78	78	78	78	78	78	78	78	78
	PM	78	78	78	78	78	78	78	78	78	78	78	78
Heating (WD)	AM	66	66	66	66	66	68	68	68	68	68	68	68
	PM	68	68	68	68	68	68	68	68	68	68	66	66
Heating (WEH)	AM	66	66	66	66	66	68	68	68	68	68	68	68
	PM	68	68	68	68	68	68	68	68	68	68	66	66

FORM 405-10

Florida Code Compliance Checklist

Florida Department of Business and Professional Regulations
Residential Whole Building Performance Method

ADDRESS: 575 SW Weatherby Place
Lake City, FL,

PERMIT #:

MANDATORY REQUIREMENTS SUMMARY - See individual code sections for full details.

COMPONENT	SECTION	SUMMARY OF REQUIREMENT(S)	CHECK
Air leakage	402.4	To be caulked, gasketed, weatherstripped or otherwise sealed. Recessed lighting IC-rated as meeting ASTM E 283. Windows and doors = 0.30 cfm/sq.ft. Testing or visual inspection required. Fireplaces: gasketed doors & outdoor combustion air. Must complete envelope leakage report or visually verify Table 402.4.2.	
Thermostat & controls	403.1	At least one thermostat shall be provided for each separate heating and cooling system. Where forced-air furnace is primary system, programmable thermostat is required. Heat pumps with supplemental electric heat must prevent supplemental heat when compressor can meet the load.	
Ducts	403.2.2 403.3.3	All ducts, air handlers, filter boxes and building cavities which form the primary air containment passageways for air distribution systems shall be considered ducts or plenum chambers, shall be constructed and sealed in accordance with Section 503.2.7.2 of this code. Building framing cavities shall not be used as supply ducts.	
Water heaters	403.4	Heat trap required for vertical pipe risers. Comply with efficiencies in Table 403.4.3.2. Provide switch or clearly marked circuit breaker (electric) or shutoff (gas). Circulating system pipes insulated to = R-2 + accessible manual OFF switch.	
Mechanical ventilation	403.5	Homes designed to operate at positive pressure or with mechanical ventilation systems shall not exceed the minimum ASHRAE 62 level. No make-up air from attics, crawlspaces, garages or outdoors adjacent to pools or spas.	
Swimming Pools & Spas	403.9	Pool pumps and pool pump motors with a total horsepower (HP) of = 1 HP shall have the capability of operating at two or more speeds. Spas and heated pools must have vapor-retardant covers or a liquid cover or other means proven to reduce heat loss except if 70% of heat from site-recovered energy. Off/timer switch required. Gas heaters minimum thermal efficiency=78% (82% after 4/16/13). Heat pump pool heaters minimum COP= 4.0.	
Cooling/heating equipment	403.6	Sizing calculation performed & attached. Minimum efficiencies per Tables 503.2.3. Equipment efficiency verification required. Special occasion cooling or heating capacity requires separate system or variable capacity system. Electric heat >10kW must be divided into two or more stages.	
Ceilings/knee walls	405.2.1	R-19 space permitting.	

ENERGY PERFORMANCE LEVEL (EPL) DISPLAY CARD

ESTIMATED ENERGY PERFORMANCE INDEX* = 77

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

575 SW Weatherby Place, Lake City, FL,

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		3
5. Is this a worst case?		Yes
6. Conditioned floor area (ft²)		2813

7. Windows**	Description	Area
a. U-Factor:	Dbl, U=0.55	228.00 ft²
SHGC:	SHGC=0.50	
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:		0.500

8. Floor Types	Insulation	Area
a. Slab-On-Grade Edge Insulation	R=0.0	1838.00 ft²
b. Floor Over Other Space	R=19.0	975.00 ft²
c. N/A	R=	ft²

9. Wall Types	Insulation	Area
a. Concrete Block - Int Insul, Exterior	R=7.0	2904.40 ft²
b. N/A	R=	ft²
c. N/A	R=	ft²
d. N/A	R=	ft²

10. Ceiling Types	Insulation	Area
a. Under Attic (Vented)	R=30.0	1538.00 ft²
b. N/A	R=	ft²
c. N/A	R=	ft²

11. Ducts	R	ft²
a. Sup: 1st Floor, Ret: 1st Floor, AH: 1st Floor	6	281.3
b. Sup: Attic, Ret: Attic, AH: 2nd Floor	6	281.3

12. Cooling systems	kBtu/hr	Efficiency
a. Central Unit	30.0	SEER:14.00
b. Central Unit	18.0	SEER:14.00

13. Heating systems	kBtu/hr	Efficiency
a. Electric Heat Pump	30.0	HSPF:7.70
b. Electric Heat Pump	18.0	HSPF:7.70

14. Hot water systems	
a. Electric	Cap: 50 gallons EF: 0.92
b. Conservation features	
None	
15. Credits	CF, Pstat

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

Builder Signature: _____ Date: _____

Address of New Home: _____ City/FL Zip: _____

*Note: This is not a Building Energy Rating. If your Index is below 70, your home may qualify for energy efficient mortgage (EEM) incentives if you obtain a Florida EnergyGauge Rating. Contact the EnergyGauge Hotline at (321) 638-1492 or see the EnergyGauge web site at energygauge.com for information and a list of certified Raters. For information about the Florida Building Code, Energy Conservation, contact the Florida Building Commission's support staff.

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

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Residential System Sizing Calculation

Summary

Dan Schnabel
575 SW Weatherby Place
Lake City, FL

Project Title:
Schnable Residence

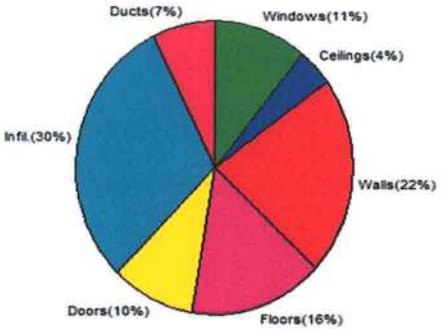
10/16/2012

Location for weather data: Gainesville, FL - Defaults: Latitude(29.7) Altitude(152 ft.) Temp Range(M) Humidity data: Interior RH (50%) Outdoor wet bulb (77F) Humidity difference(54gr.)					
Winter design temperature(MJ8 99%)	33	F	Summer design temperature(MJ8 99%)	92	F
Winter setpoint	70	F	Summer setpoint	75	F
Winter temperature difference	37	F	Summer temperature difference	17	F
Total heating load calculation	**42593**	**Btuh**	**Total cooling load calculation**	**37932**	**Btuh**
Submitted heating capacity	% of calc	Btuh	Submitted cooling capacity	% of calc	Btuh
Total (Electric Heat Pump)	112.7	48000	Sensible (SHR = 0.75)	130.4	36000
Heat Pump + Auxiliary(0.0kW)	112.7	48000	Latent	116.2	12000
			Total (Electric Heat Pump)	126.5	48000

WINTER CALCULATIONS

Winter Heating Load (for 2813 sqft)

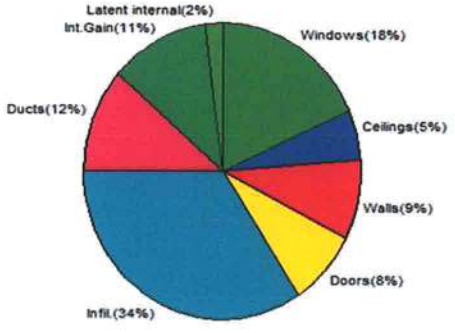
Load component			Load	
Window total	228	sqft	4640	Btuh
Wall total	2436	sqft	9390	Btuh
Door total	240	sqft	4085	Btuh
Ceiling total	1538	sqft	1812	Btuh
Floor total	See detail report		6724	Btuh
Infiltration	315	cfm	12773	Btuh
Duct loss			3170	Btuh
Subtotal			**42593**	**Btuh**
Ventilation	0	cfm	0	Btuh
TOTAL HEAT LOSS			**42593**	**Btuh**



SUMMER CALCULATIONS

Summer Cooling Load (for 2813 sqft)

Load component			Load	
Window total	228	sqft	6957	Btuh
Wall total	2436	sqft	3299	Btuh
Door total	240	sqft	3091	Btuh
Ceiling total	1538	sqft	2057	Btuh
Floor total			0	Btuh
Infiltration	237	cfm	4402	Btuh
Internal gain			4320	Btuh
Duct gain			3478	Btuh
Sens. Ventilation	0	cfm	0	Btuh
Blower Load			0	Btuh
Total sensible gain			**27604**	**Btuh**
Latent gain(ducts)			885	Btuh
Latent gain(infiltration)			8643	Btuh
Latent gain(ventilation)			0	Btuh
Latent gain(internal/occupants/other)			800	Btuh
Total latent gain			**10328**	**Btuh**
TOTAL HEAT GAIN			**37932**	**Btuh**



Powered by ACCA MANUAL J 8th Edition

EnergyGauge® System Sizing
PREPARED BY: Walter H. Sues
DATE: 10/17/12

TABLE 402.4.2

AIR BARRIER AND INSULATION INSPECTION COMPONENT CRITERIA

Project Name:	Schnable Residence	Builder Name:	Dan Schnabel
Street:	575 SW Weatherby Place	Permit Office:	Columbia County
City, State, Zip:	Lake City , FL ,	Permit Number:	
Owner:	Dan Schnabel	Jurisdiction:	
Design Location:	FL, Gainesville		

COMPONENT	CRITERIA	CHECK
Air barrier and thermal barrier	Exterior thermal envelope insulation for framed walls is installed in substantial contact and continuous alignment with building envelope air barrier. Breaks or joints in the air barrier are filled or repaired. Air-permeable insulation is not used as a sealing material. Air-permeable insulation is inside of an air barrier.	
Ceiling/attic	Air barrier in any dropped ceiling/soffit is substantially aligned with insulation and any gaps are sealed. Attic access (except unvented attic), knee wall door, or drop down stair is sealed.	
Walls	Corners and headers are insulated. Junction of foundation and sill plate is sealed.	
Windows and doors	Space between window/door jambs and framing is sealed.	
Rim joists	Rim joists are insulated and include an air barrier.	
Floors (including above-garage and cantilevered floors)	Insulation is installed to maintain permanent contact with underside of subfloor decking.	
Crawl space walls	Insulation is permanently attached to walls. Exposed earth in unvented crawl spaces is covered with Class I	
Shafts, penetrations	Duct shafts, utility penetrations, knee walls and flue shafts opening to exterior or unconditioned space are sealed.	
Narrow cavities	Batts in narrow cavities are cut to fit, or narrow cavities are filled by sprayed/blown insulation.	
Garage separation	Air sealing is provided between the garage and conditioned spaces.	
Recessed lighting	Recessed light fixtures are air tight, IC rated, and sealed to drywall. Exception—fixtures in conditioned space.	
Plumbing and wiring	Insulation is placed between outside and pipes. Batt insulation is cut to fit around wiring and plumbing, or sprayed/blown insulation	
Shower/tub on exterior wall	Showers and tubs on exterior walls have insulation and an air barrier separating them from the exterior wall.	
Electrical/phone box on	Air barrier extends behind boxes or air sealed-type boxes are installed.	
Common wall	Air barrier is installed in common wall between dwelling units.	
HVAC register boots	HVAC register boots that penetrate building envelope are sealed to subfloor or drywall.	
Fireplace	Fireplace walls include an air barrier.	