HWC

ENGINEERING • INSPECTIONS
CERTIFICATIONS • TESTING

June 7, 2012

TownHomes, LLC
133 S.E. Newell Drive
Lake City, FL 32056

RE: Manufacturer: TownHomes, LLC
S/N Size & Occupancy: 2945-1084 (TH-71FL); 29'-0 x 76'-0"; R-3
HWC Plan#: 2R-2198-0164F

To Whom It May Concern:

This is to certify that the plans for the referenced manufactured building have been reviewed and approved as being in compliance with the 2010 Florida Codes and Standards, as noted on the approved drawings, subject to the following limitations:

1. Approval covers factory-built structure only. (Note: Any alterations to factory built structure on site voids state approval)
2. Items installed at the site are subject to review, approval, and inspection by the local authority having jurisdiction.
3. The Chapter 633 Plan Review and Inspection shall be conducted by the local fire safety inspector.
4. Signed and sealed plans shall be on file with HWC Engineering.
5. NOT approved for High Velocity Hurricane Zone (i.e. Broward and Dade Counties)

Sincerely,
HILBORN, WERNER, CARTER & ASSOCIATES, INC.

Plan Reviewer

HILBORN, WERNER, CARTER AND ASSOCIATES, INC.
1627 SOUTH MYRTLE AVENUE CLEARWATER, FLORIDA 33756
(727) 584-8151
FAX: (727) 586-3343 / (727) 585-2392 / (727) 587-0447
Modular Dapia Inspection

FORM 405-10

FLORIDA ENERGY EFFICIENCY CODE FOR BUILDING CONSTRUCTION

Florida Department of Business and Professional Regulation - Residential Performance Method

Project Name:	TH-71FL	Builder Name:	
Street:	TH-71FL	Permit Office:	COLUMBIA
City, State, Zip:	JACKSONVILLE , FL ,	Permit Number:	
Owner:		Jurisdiction:	221000
Design Location:	FL, Jacksonville		

1. New construction or existing	New (From Plans)	9. Wall Types (1680.0 sqft.)		Insulation	Area
2. Single family or multiple family	Single-family	a. Frame - Wood, Exterior		R=19.0	1680.00 ft²
3. Number of units, if multiple family	1	b. N/A		R=	ft²
4. Number of Bedrooms	4	c. N/A		R=	ft²
5. Is this a worst case?	Yes	d. N/A		R=	ft²
6. Conditioned floor area above grade (ft²)	2204	10. Ceiling Types (2204.0 sqft.)		Insulation	Area
Conditioned floor area below grade (ft²)	0	a. Under Attic (Vented)		R=30.0	2204.00 ft²
7. Windows(205.7 sqft.)	Description	Area	b. N/A	R=	ft²
a. U-Factor:	Dbl, U=0.35	205.67 ft²	c. N/A	R=	ft²
SHGC:	SHGC=0.33		11. Ducts		R ft²
b. U-Factor:	N/A	ft²	a. Sup: RoomsInBlock1, Ret: RoomsInBlock1, AH:		6 150
SHGC:					
c. U-Factor:	N/A	ft²	12. Cooling systems	kBtu/hr	Efficiency
SHGC:			a. Central Unit	40.0	SEER:13.00
d. U-Factor:	N/A	ft²			
SHGC:			13. Heating systems	kBtu/hr	Efficiency
Area Weighted Average Overhang Depth:		0.000 ft.	a. Electric Heat Pump	32.0	HSPF:7.70
Area Weighted Average SHGC:		0.330			
8. Floor Types (2204.0 sqft.)	Insulation	Area	14. Hot water systems		
a. Crawlspace	R=11.0	2204.00 ft²	a. Electric		Cap: 50 gallons
b. N/A	R=	ft²			EF: 0.900
c. N/A	R=	ft²	b. Conservation features		
			None		
			15. Credits		Pstat

Glass/Floor Area: 0.093

Total Proposed Modified Loads: 43.47

Total Standard Reference Loads: 59.46

PASS

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

PREPARED BY: WILLIAM J. KALKER JR

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: Approved By SCOTT S. FRANCIS

DATE: Date Plan Reviewed

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

SEE MANUFACTURER'S CONTRACT WITH FLORIDA DCA

Received for FILE COPY Code Compliance

Modular Building Plans Examiner
Florida License No. SMP-42

PROJECT

Title:	TH-71FL	Bedrooms:	4	Address Type:	Street Address
Building Type:	FLProp2010	Conditioned Area:	2204	Lot #	
Owner:		Total Stories:	1	Block/SubDivision:	
# of Units:	1	Worst Case:	Yes	PlatBook:	
Builder Name:		Rotate Angle:	90	Street:	TH-71FL
Permit Office:		Cross Ventilation:	No	County:	DUVAL
Jurisdiction:		Whole House Fan:	No	City, State, Zip:	JACKSONVILLE , 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, Jacksonville	FL_JACKSONVILLE_INT	2	32	93	70	75	1281	49	Medium

BLOCKS

Number	Name	Area	Volume
1	Block1	2204	17632

SPACES

Number	Name	Area	Volume	Kitchen	Occupants	Bedrooms	Infil ID	Finished	Cooled	Heated
1	RoomsInBlock1	2204	17632	Yes	4	4	1	Yes	Yes	Yes

FLOORS

√	#	Floor Type	Space	Exposed Perim	Wall Ins. R-Value	Area	Floor Joist R-Value	Tile	Wood	Carpet
_____	1	Crawlspace	RoomsInBlock1	210 ft	0	2204 ft²	11	0	0	1

ROOF

√	#	Type	Materials	Roof Area	Gable Area	Roof Color	Solar Absor.	SA Tested	Emitt	Emitt Tested	Deck Insul.	Pitch (deg)
_____	1	Gable or shed	Composition shingles	2271 ft²	274 ft²	Medium	0.96	No	0.9	No	0	14

ATTIC

√	#	Type	Ventilation	Vent Ratio (1 in)	Area	RBS	IRCC
_____	1	Full attic	Vented	300	2204 ft²	N	N

CEILING

√	#	Ceiling Type	Space	R-Value	Area	Framing Frac	Truss Type
_____	1	Under Attic (Vented)	RoomsInBlock1	30	2204 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	Exterior	Frame - Wood	RoomsInBloc	19	76		8	0	608 ft²	0	0.23	0.75	0
_____	2	E	Exterior	Frame - Wood	RoomsInBloc	19	29	0	8	0	232 ft²	0	0.23	0.75	0
_____	3	S	Exterior	Frame - Wood	RoomsInBloc	19	76	0	8	0	608 ft²	0	0.23	0.75	0
_____	4	W	Exterior	Frame - Wood	RoomsInBloc	19	29		8	0	232 ft²	0	0.23	0.75	0

DOORS

√	#	Ornt	Door Type	Space	Storms	U-Value	Width Ft	Width In	Height Ft	Height In	Area
_____	1	N	Insulated	RoomsInBloc	None	0.52	3	2	6	8	21.11111
_____	2	S	Insulated	RoomsInBloc	None	0.52	3	2	6	8	21.11111

WINDOWS

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

√	#	Ornt	Wall ID	Frame	Panes	NFRC	U-Factor	SHGC	Storms	Area	Overhang Depth	Overhang Separation	Int Shade	Screening
_____	1	N	1	Vinyl	Low-E Double	Yes	0.35	0.33	N	60 ft²	0 ft 0 in	0 ft 0 in	HERS 2006	None
_____	2	N	1	Vinyl	Low-E Double	Yes	0.35	0.33	N	40 ft²	0 ft 0 in	0 ft 0 in	HERS 2006	None
_____	3	N	1	Vinyl	Low-E Double	Yes	0.35	0.33	N	20 ft²	0 ft 0 in	0 ft 0 in	HERS 2006	None
_____	4	S	3	Vinyl	Low-E Double	Yes	0.35	0.33	N	9 ft²	0 ft 0 in	0 ft 0 in	HERS 2006	None
_____	5	S	3	Vinyl	Low-E Double	Yes	0.35	0.33	N	60 ft²	0 ft 0 in	0 ft 0 in	HERS 2006	None
_____	6	N	1	Vinyl	Low-E Double	Yes	0.35	0.33	N	16.66666	0 ft 0 in	0 ft 0 in	HERS 2006	None

INFILTRATION

#	Scope	Method	SLA	CFM 50	ELA	EqLA	ACH	ACH 50
1	BySpaces	Proposed SLA	0.000360	2081.2	114.25	214.87	0.2771	7.0821

HEATING SYSTEM

√	#	System Type	Subtype	Efficiency	Capacity	Block	Ducts
_____	1	Electric Heat Pump	None	HSPF: 7.7	32 kBtu/hr	1	sys#1

COOLING SYSTEM

√	#	System Type	Subtype	Efficiency	Capacity	Air Flow	SHR	Block	Ducts
_____	1	Central Unit	None	SEER: 13	40 kBtu/hr	1200 cfm	0.75	1	sys#1

HOT WATER SYSTEM

√	#	System Type	SubType	Location	EF	Cap	Use	SetPnt	Conservation
_____	1	Electric	None	RoomsInBlock	10.9	50 gal	70 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	RoomsInBloc	6	150 ft²	RoomsInBloc	75 ft²	DSE=0.88	RoomsInBl	0.0 cfm	0.00 %	0.00	0.60	1	1

TEMPERATURES

Programable Thermostat: Y

Ceiling Fans:

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

Thermostat Schedule: HERS 2006 Reference

Schedule Type		Hours 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

MECHANICAL VENTILATION

Type	Supply CFM	Exhaust CFM	Fan Watts	HRV	Heating System	Run Time	Cooling System
None	0	0	0	0	1 - Electric Heat Pump	0%	1 - Central Unit

FORM 405-10

Florida Code Compliance Checklist

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

ADDRESS: TH-71FL
JACKSONVILLE, 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* = 73

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

TH-71FL, JACKSONVILLE, 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	4
5. Is this a worst case?	Yes
6. Conditioned floor area (ft²)	2204

7. Windows**

	Description	Area
a. U-Factor: SHGC:	Dbl, U=0.35 SHGC=0.33	205.67 ft²
b. U-Factor: SHGC:	N/A	ft²
c. U-Factor: SHGC:	N/A	ft²
d. U-Factor: SHGC:	N/A	ft²

Area Weighted Average Overhang Depth: 0.000 ft.
Area Weighted Average SHGC: 0.330

8. Floor Types

	Insulation	Area
a. Crawlspace	R=11.0	2204.00 ft²
b. N/A	R=	ft²
c. N/A	R=	ft²

9. Wall Types

	Insulation	Area
a. Frame - Wood, Exterior	R=19.0	1680.00 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	2204.00 ft²
b. N/A	R=	ft²
c. N/A	R=	ft²

11. Ducts

	R	ft²
a. Sup: RoomsInBlock1, Ret: RoomsInBlock1, AH:	6	150

12. Cooling systems

	kBtu/hr	Efficiency
a. Central Unit	40.0	SEER:13.00

13. Heating systems

	kBtu/hr	Efficiency
a. Electric Heat Pump	32.0	HSPF:7.70

14. Hot water systems
a. Electric — Cap: 50 gallons, EF: 0.9
b. Conservation features: None

15. Credits: 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.