16

APPLICATION ENGINEERING FOR HEATING AND COOLING

SOUTHERN ENERGY HOMES
Hwy 41 N, PO Box 269
Addison, AL 35540

Manufacturer's Model #: EZ-476-1-FL
HVAC System Type: OVERHEAD GRAD FLEX FOR UPFLOW (SPLIT A/C)

These prints comply with the Florida Manufactured Building Act and adopted Codes and adhere to the following criteria:

APPROVED BY NTA INC.

Const. Type:	VB - unprotected
Occupancy:	R-3
Allowable No. of Floors:	One (1)
Wind Velocity:	126 MPH - Ultimate
Fire Rating of Ext. Walls:	0 hr
Plan No.:	MFT-2530-EZ-476-1
Allow. Floor Load:	40 PSF
Approval Date:	7/18/2012
Manufacturer:	Southern Energy Homes, Inc.

Prepared By LaSalle Air Systems 7/6/2012 {Method & Output © 2012}

Calculations on this page are based on design parameters set forth in ASHRAE and ACCA Manuals J and D. System registers are located for best distribution based on Manual T. Design calculations are based on worst case orientation. Room loads may vary based on actual conditions.

ENTIRE HOUSE VALUES - DESIGN ZONE: FL, Region 2A (2010)

COOLING LOAD: **21,163** Btuh based on outside temp of 96 ° F (35 C) with inside temp reduced to 75 ° F (23 C)

HEATING LOAD: **25,754** Btuh based on outside temp of 17 ° F (-9 C) with inside temp raised to 72 ° F (22 C)

Crawlspace is not heated by the primary air handler.

CONSTRUCTION DETAILS & U FACTORS: (19-19-38) GREEN ORIENTATION

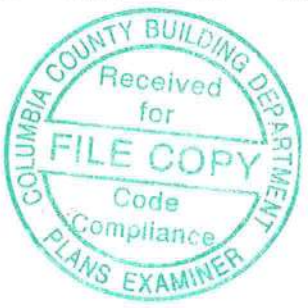
TOTAL FLOOR AREA:	1908.50 s.f.	TRUE OUTSIDE PERIMETER:	202.33 ft				
Lowest Ceiling Height:	108 in.	Highest Ceiling Height:	108 in.				
NET Ext Wall Area:	1518.92 s.f.	ROOF:	0.029	FLOOR DUCTS (U):	0		
TOTAL Low-E window	254.80 s.f.	WALLS:	0.059	ATTIC DUCTS (U):	0.125		
TOTAL S.G.D.	0.00 s.f.	FLOOR:	0.050	EXT. DUCTS (U):	0.125		
TOTAL Glass Block	0.00 s.f.	Low-E wi	0.370	ATTIC DUCT AREA:	44.286	s.f exposed	
TOTAL Skylite	0.00 s.f.	S.G.D.	1.060	EXT. DUCT AREA:	0	s.f exposed	
TOTAL Door1 Area:	21.64 s.f.	Glass Blc	0.790	PEOPLE:	4		
TOTAL Door2 Area:	43.28 s.f.	Skylite	0.790	FIREPLACES:	0		
WINDOW % OF FLOOR	12.43 %	Door 1:	0.370	DUCT GAIN:	1063	Btuh	@ 83 TD/ 49 TD
WINDOW % OF WALL	13.02 %	Door 2:	0.280	DUCT LOSS:	1376	Btuh	@ 110 TD
LATENT GAIN:	2478 Btuh			SUMMER INFILTR:	57.4	cfm	
Mech. Ventilation :	0 cfm	Altitude:	40 ft	WINTER INFILTR:	86.1	cfm	

ROOM BY ROOM VALUES:

657.3 FPM, max velocity in trunk #: 7
0.19 Max pressure at A/H

Actual heating and cooling required in each room and flow set to maximum of either heating or cooling

ROOM NAME		HEATING LOSS (Btu)	COOLING GAIN (Btu)	CFM DIST	Cooling Air Values for 2.5 ton unit CFM	Btuh	Heating Air Values for 90 % 30 Gas/Oil E	Btuh	10.0 KW Elec Btuh	Maximum A/C capacity Calibrated Blower Test Btuh (alt adj)
Living Room	c	4,756	4,334	157	166	5,107	158	4,628	5,857	6,740
Dining	c	3,480	3,456	129	151	4,636	144	4,201	5,317	6,102
Kitchen	h	1,753	1,137	47	66	2,044	63	1,853	2,345	2,699
Utility	h	1,417	857	38	56	1,725	53	1,563	1,978	2,277
M. Bedroom	c	2,493	2,241	84	104	3,191	99	2,892	3,660	4,212
Dressing Area	c	361	229	12	-	-	-	-	-	-
WIC	h	920	593	25	53	1,644	51	1,490	1,885	2,170
M. Bath	c	2,936	2,200	82	94	2,895	90	2,623	3,320	3,821
Bedroom #3	c	2,953	2,529	93	98	3,032	94	2,748	3,477	3,986
Hall Bath	h	811	531	22	40	1,237	38	1,121	1,419	1,632
Bedroom #2	c	2,698	2,372	88	84	2,584	80	2,342	2,963	3,411
Foyer	h	1,176	682	32	54	1,656	51	1,501	1,900	2,187
TOTALS		25,754	21,163	809	966	29,752	923	26,960	34,120	39,236



APPLICATION ENGINEERING
EQUIPMENT SELECTION AND SIZING WORKSHEET (MANUAL S)

Manufacturer: SOUTHERN ENERGY HOMES
Hwy 41 N, PO Box 269
Addison, AL 35540

Model #: EZ-476-1-MOD-FL
HVAC System Type: OVERHEAD GRAD FLEX FOR UPFLOW (SPLIT A/C)
Design Zone: FL, Region 2A (2010)

Prepared by LaSalle Air Systems *7/6/2012*

RESULTS FROM MANUAL-J CALCULATIONS: *Worst Case Orientation*

HEATING LOAD:	25,754 Btuh at	17 °	**REQ'D BLOWER CFM:**	966 cfm at altitude of	40 ft		
SENSIBLE CLG LOAD:	18,685 Btuh at	96 °	**Entering Air DRY Bulb:**	75.0 °	**Mech. Ventilation :**	0	
LATENT CLG LOAD:	2,478 Btuh at	96 °	**Entering Air WET Bulb:**	59.0 °	**Entering Air RH:**	45	%
GRAINS DIFFERENCE:	40		**Outside wet bulb:**	83.0 °	**outside RH:**	68.3	%

FILL IN THE DATA FROM THE H.V.A.C. EQUIPMENT DATA CHARTS: (Do not use ARI Ratings!)

Air handler model #:_____ Condenser model #:_____

☐ *Blower Data* Select blower speed in COOLING mode: _____
Blower CFM is from 649 _____ to 879 for Total (External) Static Pressure of 0.7_____ to 0.9

☐ *Electric, Gas or Oil Furnace* Select blower speed in HEATING mode: _____ Output Btuh is from 27041_____ to 36055
Blower CFM is from 451 _____ to 533 for Temp. rise of 55-65
Blower CFM is from 533 _____ to 651 for Temp. rise of 45-55
Blower CFM is from 651 _____ to 837 for Temp. rise of 35-45

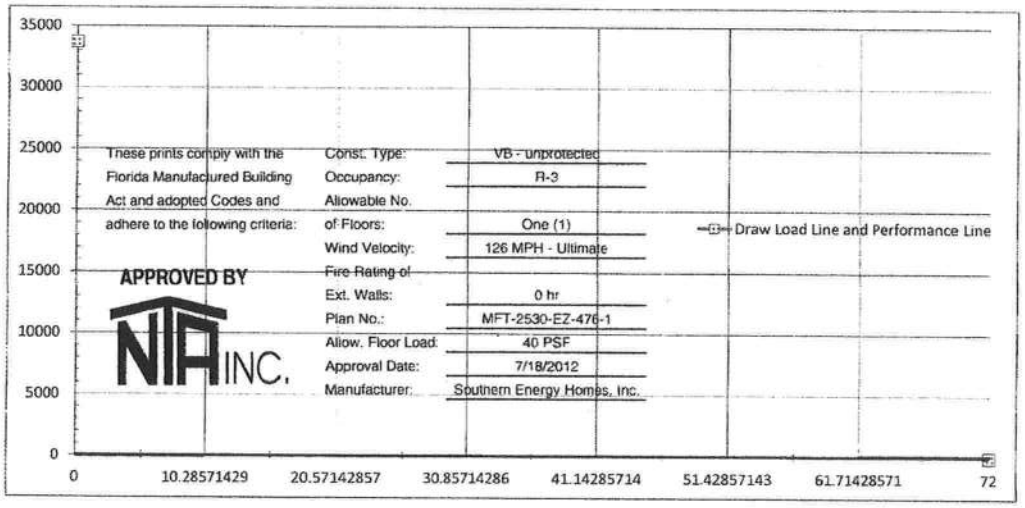
☐ *Cooling Equipment* S/T Ratio = 0.88 Leaving Temp = 48.0 ° TD = 27.0 °
At 96F outside, Total A/C output from 21586 btuh _____ to 24337 btuh is GOOD.
At 96F outside, Total A/C output from 24337 btuh _____ to 25395 btuh is MARGINAL.

Sensible Capacity is from 17445 btuh _____ to 19923 btuh
Latent Capacity is from 2428.btuh _____ to 3717 btuh

Mechanical Ventilation is 0.0 % of blower cfm. Dry bulb increases by: 0.0 F and wet bulb by: 0 F

☐ *Heat Pump with Supplemental Heating Coils*

Data from performace charts	**Data from load calculation**
_____ btuh at _____ F outside	0 btuh at 72 F outside
_____ btuh at _____ F outside	25,754 btuh at 17 F outside



At winter design temperature of 17 F outside, the distance between the lines is _____ btuh

which is the Supplemental Heat divided by 3400 = _____ KW.

NEC 220.82

Southern Energy
Residential Electrical Feeder
Load Calculation for 120 / 240 Volt

DATE: 07/10/12
BY: SMP

MODEL : EZ-476-1

(B)(1) LIGHTING LOAD

Main Floor Size =		Tag Floor Size =		2nd. Floor Size =	
length =	76.00 ft.	length =	ft.	length =	ft.
width =	30.00 ft.	width =	ft.	width =	ft.

Total area = 1928 sq. ft.
x 3 VA
5784 VA

Minimum number of 15 Amp circuits = **4**

(B)(2) SMALL APPLIANCE LOAD

No. of circuits = 4
x 1500 VA
6000 VA

LAUNDRY LOAD

No. of circuits = 1
x 1500 VA
1500 VA

(B)(3) APPLIANCE LOAD & (B)(4) MOTOR LOAD

Electric Range =	11900 VA
Electric Water Heater =	8000 VA
Electric Clothes Dryer =	5600 VA
Electric Cooktop =	0 VA
Electric Wall Oven =	0 VA
Trash Compactor =	0 VA
Dishwasher =	744 VA
Garbage Disposal =	0 VA
Hydromassage Tub Motor =	0 VA
Gas/Oil furnace blower motor =	0 VA
Microwave oven =	1600 VA
Other =	0 VA
Exhaust Fans (total of all) =	840 VA
	28684 VA

1 Kitchen @ 120 VA each
3 Bath @ 240 VA each

TOTAL OF LOADS (B)

(1) Lighting load =	5784 VA
(2) Small appliance load =	6000 VA
(2) Laundry load =	1500 VA
(3) Appliance & (4) Motor load	28684 VA
Subtotal =	41968 VA

Demand Factor

First 10000 VA @ 100% =	10000 VA
Remaining 31968 VA @ 40% =	12787 VA
General Load Total =	22787 VA

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NTA INC.

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Allowable No. of Floors:	One (1)
Wind Velocity:	126 MPH - Ultimate
Fire Rating of Ext. Walls:	0 hr
Plan No.:	MFT-2530-EZ-476-1
Allow. Floor Load:	40 PSF
Approval Date:	7/18/2012
Manufacturer:	Southern Energy Homes, Inc.

(C) HEATING AND AIR-CONDITIONING LOAD (USE LARGEST)

(1) Air conditioning & cooling @ 100% =	0 VA
(2) Heat pump w/o supplemental electric heating @ 100% =	0 VA
(3) Electric thermal storage @ 100% =	0 VA
(4) Heat pump @ 100% & supplemental electric heating @ 65% =	0 VA
(5) Electric space heating (less than 4 units) @ 65% =	13260 VA

Total VA = 36047 VA / 240 Volts =

TOTAL OF ALL LOADS = 150 AMPS
Minimum Main Panel Size Required = 175 AMPS
Actual Main Panel Size Installed = **200** **AMPS**

Service Feeder Conductor Size Required = **4/0** AWG AL or CU-Clad AL
Table 310.15(B)(6) **2/0** AWG CU

Grounding Electrode Conductor Size = **2** AWG AL or CU-Clad AL
Table 250.66 **4** AWG CU

220.61
NEUTRAL LOAD

Lighting, Small Appliance & Laundry Loads =	13284 VA
First 3000 VA @ 100% =	3000 VA
Remaining 10284 VA @ 35% =	3599.4 VA
Subtotal =	6599.4 VA
Total Cooking Appliances @ 70% =	8330 VA
Clothes Dryer @ 70% =	3920 VA
Sum of other 120 V Loads =	3184 VA
Total =	22033.4 VA / 240 V =

Neutral wire size based on amps = **92 AMPS**

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DESIGNER GUIDE FOR ALTERNATIVE FOUNDATIONS:

FLORIDA

UNIT WIDTH: 180 in
ROOF PITCH: 6/12 TO 6/12
WIND: 100 MPH EXPOSURE C-enclose
1 STORY- W.O ATTIC
PLANT #: 943
MODEL NUMBER: EZ-476-1
MAX. STRUCTURE LENGTH: 76 ft.

Mating wall is a roof load bearing wall; therefore the column supports of all first floor mating wall opening must be supported for the concentrated gravity and uplift loads based on the opening span as provided in table A:

TABLE A: Mating wall column roof loads:

	Colum ID	First Floor Span (ft.)	Location (Ft)	Roof Loads at 1st floor opening per Snow load (lbs.)[1]: 20 psf					Net Uplift
THE FOLLOWING PIERS ARE LOCATED UNDER (A/B) MATING WALL COLUMNS	1	8'	36.333'	2146 #					400 #
	2	8'	44.333'	2146 #					400 #
	3	6.9'	48.333'	1851 #					345 #
	4	6.9'	55.166'	1851 #					345 #
	5	8'	60.1666'	2146 #					400 #
	6	8'	68.166'	2146 #					400 #

JOHN W. WELDY
LICENSE
No. 54556
STATE OF FLORIDA
PROFESSIONAL ENGINEER
7/17/12

1.Table A reflects roof load at mating wall opening supports from roof load only. To determine the load at a foundation adjacent floor and wall loads must be added per table B. In lue of using above load may be derivied by multiplying half mating wall opening span times mating wall at 1st floor ceiling uniform load as specified in table B.

TABLE B: UNIFORM LOAD (PLF) AT FLOOR LINE AT:

	Floor Load Only[3]	Uniform Load under wall per Ground Snow (lbs/ft.): 20 psf					Net Uplift (lb/ft.) NC	Corner
SIDEWALL AT 1st FLOOR CEILING	. plf	298.7 plf					85.6 plf	106.9 plf
SIDEWALL AT FLOOR TO SILL:	. plf	596.8 plf					. plf	. plf
MAX. SIDEWALL RIM RAIL SPANS (in.)[1]	NA	NA						
MATING WALL AT 1st FLOOR CEILING:	. plf	536.6 plf					100. plf	100. plf
MATING WALL AT FLOOR TO SILL:	. plf	1140. plf					. plf	. plf
MAX. MATING RIM RAIL SPANS (in.)[2]	NA	NA						
SIDEWALL & MATING WALL SUPPORTED[8]:		N						
CHASSIS BEAM SUPPORTS (PLF):	360. plf	607.6 plf						
MAXIMUM CHASSIS PIER SPACING (FT.):	13.4' o/c	10.3' o/c						

FOOTNOTES:

1. SIDEWALL SPANS BASED ON RIM JOIST(S): (2) 2X8 #2 SPF WITH EACH RIM MEMBER SPLICED WITH 5" X 8" MiTeK M20 metal plates each side
2. MATING GIRDER SPANS BASED ON RIM JOIST(S): (4) 2X8 #2 SPF WITH EACH RIM MEMBER SPLICED WITH 5" X 8" MiTeK M20 metal plates each side
3. FLOOR ONLY- INDICATES LOAD OR ALLOWABLE SPANS UNDER MATING WALL OPENINGS (FLOOR LOAD ONLY).
4. EACH ENDWALL SHALL BE ANCHORED TO FOUNDATION FOR SHEAR DUE TO HOR. WIND FOR 4343 Lbs. &. EACH SIDEWALL SHALL BE ANCHORED TO FOUNDATION FOR SHEAR DUE TO HOR. WIND FOR 3019 Lbs.
5. GRAVITY LOADS DO NOT INCLUDE WEIGHT OF FOUNDATION WALLS AND FOOTERS.
6. INDICATES UNIFORM LOAD OR ALLOWABLE SPANS UNDER MATING WALLS (FLOOR + ROOF LOADS).
7. UPLIFT LOAD AT SIDES OF FIRST FLOOR OPENINGS=(PLF)*OPENING/2
8. "Y"- SIDEWALL & MATING WALL IS SUPPORTED BY PIERS. OR "N"-SIDEWALL OR MATING WALL NOT SUPPORTED BY PIERS AT 8' OC. MAX.

Const. Type:	Occupancy:	Allowable No of Floors:	Wind Velocity:	Fire Rating of Ext. Walls:	Plan No.:	Allow. Floor Load:	Approval Date:	Manufacturer:
VB - unprotected	R-3	One (1)	126 MPH - Ultimate	0 hr	MFT-2530-EZ-476-1	40 PSF	7/18/2012	Southern Energy Homes, Inc.

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NOTES TO ALTERNATE FOUNDATION DESIGN PROFFESIONAL:

1. THIS PACKAGE CONTAINS A COMPLETE RECOMMENDED FOUNDATION SUPPORT AND ANCHORAGE SYSTEM DESIGNED TO CARRY ALL IMPOSED LOADS ON THE STRUCTURE. ALTERNATIONS TO THESE DIRECTIONS MUST BE PREFORMED BY A LICENSED PROFESSIONAL ENGINEER TO CARRY ALL IMPOSED LOADS IN A MANNOR THAT DOES NOT OVERSTRESS THE HOME STRUCTURE.
2. THE LOAD ON THIS PAGE HAS BEEN PREPARED TO COMMUNICATE THE IMPOSED LOAD REQUIREMENTS FOR THE HOME AND IS INTENDED TO BE UTILIZED BY A PROFESSIONAL ENGINEERING IN CONFORMANCE WITH LOCAL BUILDING CODES.
3. FOUNDATION LOADS ABOVE REFLECTS THE FOLLOWING:
   a. PIER SET (FRAME TIED) FOUNDATION DESIGN FOR: 30' - 0 " 2-SECTION MODULAR 1 STORY- W.O ATTIC
   b. 100 MPH EXPOSURE C-enclosed
   c. 20 PSF, MAX. GROUND SNOW LOAD.
   d. 40 PSF FL. LL., 7PSF T.C.D.L., 8PSF B.C. D.L., 8PSF FL. DL. &, 10PSF B.C.L.L MAX. GROUND SNOW LOAD.
   e. SEISMIC DESIGN CATEGORY C SDS=0.49
4. ALL DESIGN AND CONSTRUCTION IS SUBJECT TO THE AUTHORITY HAVING JURISDICTION. CONTACT LOCAL BUILDING DEPARTMENT FOR FROST LINE AND SOIL REQUIREMENTS.
5. FLOOR OR FOUNDATION WALL MUST BE INSULATED TO MEET A CONDITION SPACE AS REQUIRED BY HVAC DESIGN AS APPROVED BY BUILDING JURISDICTION. FOUNDATION WALL INSULATION SHALL BE PROVIDED AND INSTALLED BY OTHESR ON-SITE.
6. ALL FOUNDATION AND SITE WORK TO BE PERFORMED BY A LICENSED PROFESSIONAL CONTRACTOR.
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8. PLEASE REFER TO THE PROVIDED FOUNDATION DESIGN PACKAGE FOR ALL FOUNDATION CONSTRUCTION REQUIREMENTS.
9. PLEASE CONTACT JOHN WELDY DIRECTOR OF ENGINEERING AT 574.825.7500 FOR ADDITIONAL INFORMATION. PLEASE PROVIDE FILENAME:943N-8.R.K.E.22.2.210(4)

CMH MANUFACTURING

Ver. 12.13

DESIGNER GUIDE FOR ALTERNATIVE FOUNDATIONS:

FLORIDA

UNIT WIDTH: 180 in
ROOF PITCH: 6/12 TO 6/12
WIND: 100 MPH EXPOSURE C-enclosed
1 STORY- W.O ATTIC
PLANT #: 943
MODEL NUMBER: EZ-476-1
MAX. STRUCTURE LENGTH: 76 ft.

Mating wall is a roof load bearing wall; therefore the column supports of all first floor mating wall opening must be supported for the concentrated gravity and uplift loads based on the opening span as provided in table A:

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FOOTNOTES:

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TABLE B: UNIFORM LOAD (PLF) AT FLOOR LINE AT:

	Floor Load Only[3]	Uniform Load under wall per Ground Snow (lbs/ft.): 20 psf					Net Uplift (lb/ft.) NC	Corner
SIDEWALL AT 1st FLOOR CEILING	360. plf	298.7 plf					85.6 plf	106.9 plf
SIDEWALL AT FLOOR TO SILL:	360. plf	586. plf					. plf	. plf
MAX. SIDEWALL RIM RAIL SPANS (in.)[1]	60."	68."						
MATING WALL AT 1st FLOOR CEILING:	720. plf	536.6 plf					100. plf	100. plf
MATING WALL AT FLOOR TO SILL:	720. plf	1118.4 plf					. plf	. plf
MAX. MATING RIM RAIL SPANS (in.)[2]	86.8"	72.5"						

FOOTNOTES:

1. SIDEWALL SPANS BASED ON RIM JOIST(S): (2) 2X8 #2 SPF WITH EACH RIM MEMBER SPLICED WITH 5" X 8" MiTeK M20 metal plates each side
2. MATING GIRDER SPANS BASED ON RIM JOIST(S): (4) 2X8 #2 SPF WITH EACH RIM MEMBER SPLICED WITH 5" X 8" MiTeK M20 metal plates each side
3. FLOOR ONLY- INDICATES LOAD OR ALLOWABLE SPANS UNDER MATING WALL OPENINGS (FLOOR LOAD ONLY).

Consi. Type: V - Unprotected
Occupancy: R-3
Allowable No. of Floors: One (1)
Wind Velocity: 126 MPH - Ultimate
Fire Rating of Ext. Walls: 0 hr
Plan No.: MFT-2530-EZ-476-1
Allow. Floor Load: 40 PSF
Approval Date: 7/18/2012
Manufacturer: Southern Energy Homes, Inc.

4. EACH ENDWALL SHALL BE ANCHORED TO FOUNDATION FOR SHEAR DUE TO HOR. WIND FOR 4343 Lbs. &. EACH SIDEWALL SHALL BE ANCHORED TO FOUNDATION FOR SHEAR DUE TO HOR. WIND FOR 3019 Lbs.
5. GRAVITY LOADS DO NOT INCLUDE WEIGHT OF FOUNDATION WALLS AND FOOTERS.
6. INDICATES UNIFORM LOAD OR ALLOWABLE SPANS UNDER MATING WALLS (FLOOR + ROOF LOADS).
7. UPLIFT LOAD AT SIDES OF FIRST FLOOR OPENINGS=(PLF)*OPENING/2

NOTES TO ALTERNATE FOUNDATION DESIGN PROFFESIONAL:

1. THIS PACKAGE CONTAINS A COMPLETE RECOMMENDED FOUNDATION SUPPORT AND ANCHORAGE SYSTEM DESIGNED TO CARRY ALL IMPOSED LOADS ON THE STRUCTURE. ALTERNATIONS TO THESE DIRECTIONS MUST BE PREFORMED BY A LICENSED PROFESSIONAL ENGINEER TO CARRY ALL IMPOSED LOADS IN A MANNOR THAT DOES NOT OVERSTRESS THE HOME STRUCTURE.
2. THE LOAD ON THIS PAGE HAS BEEN PREPARED TO COMMUNICATE THE IMPOSED LOAD REQUIREMENTS FOR THE HOME AND IS INTENDED TO BE UTILIZED BY A PROFESSIONAL ENGINEERING IN CONFORMANCE WITH LOCAL BUILDING CODES.
3. FOUNDATION LOADS ABOVE REFLECTS THE FOLLOWING:
   a. OFF FRAME BASEMENT & CRAWL FOUNDATION DESIGN FOR: 30' - 0 " 2-SECTION MODULAR 1 STORY- W.O ATTIC
   b. 100 MPH EXPOSURE C-enclosed
   c. 20 PSF, MAX. GROUND SNOW LOAD.
   d. 40 PSF FL. LL., 7PSF T.C.D.L., 8PSF B.C. D.L., 8PSF FL. DL. &, 10PSF B.C.L.L MAX. GROUND SNOW LOAD
   e. SEISMIC DESIGN CATEGORY C SDS=0.49
4. ALL DESIGN AND CONSTRUCTION IS SUBJECT TO THE AUTHORITY HAVING JURISDICTION. CONTACT LOCAL BUILDING DEPARTMENT FOR FROST LINE AND SOIL REQUIREMENTS.
5. FLOOR OR FOUNDATION WALL MUST BE INSULATED TO MEET A CONDITION SPACE AS REQUIRED BY HVAC DESIGN AS APPROVED BY BUILDING JURISDICTION. FOUNDATION WALL INSULATION SHALL BE PROVIDED AND INSTALLED BY OTHESR ON-SITE.
6. ALL FOUNDATION AND SITE WORK TO BE PERFORMED BY A LICENSED PROFESSIONAL CONTRACTOR.
7. THIS IS NOT INTENDED FOR CONSTUCTION DESIGN. FOUNDATION MUST BE DESIGNED TO CARRY ALL IMPOSED LOADS INCLUDING BUT NOT LIMITED TO FORCES INDICATED ABOVE FOR SPECIFIC STRUCTURE BY REGISTERED PROFESSIONAL ENGINEER IN ACCORDANCE WITH APPLICABLE BUILDING CODES.
8. PLEASE REFER TO THE PROVIDED FOUNDATION DESIGN PACKAGE FOR ALL FOUNDATION CONSTRUCTION REQUIREMENTS.
9. PLEASE CONTACT JOHN WELDY DIRECTOR OF ENGINEERING AT 574.825.7500 FOR ADDITIONAL INFORMATION. PLEASE PROVIDE FILENAME:943I-8.R.K.E.22.2.210(_)

These prints comply with the Florida Manufactured Building Act and adopted Codes and adhere to the following criteria:

APPROVED BY NTA INC.

Job	Truss	Truss Type	Qty	Ply	Wood Perfect, LLC
WP12034	M373-24	HINGED DBL MONO	1	1	M373-24 ASCE 7-10 Florida

P.E. Robbins, Inc., Victoria, IL 61485, PER

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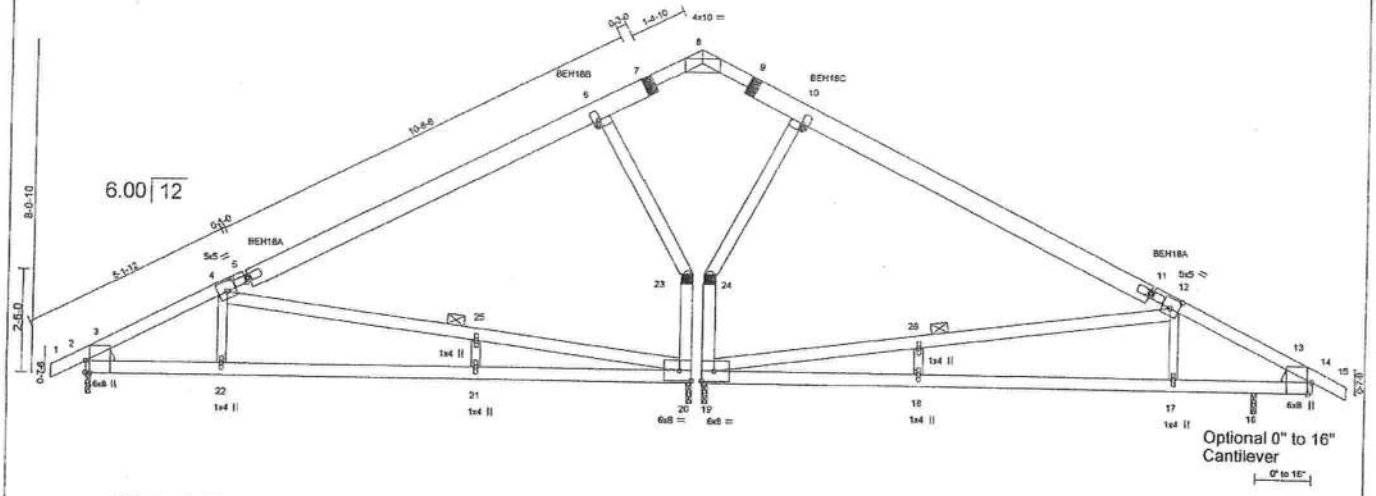
-0-10-0 2-7-4 3-4-0 14-10-8 26-5-0 29-9-0 30-7-0
0-10-0 2-7-4 0-8-12 11-6-8 11-6-8 3-4-0 0-10-0

Scale = 1:50.5



2-7-4 3-4-0 9-6-0 14-9-0 15-0-0 20-3-0 26-5-0 29-9-0
2-7-4 0-8-12 6-2-0 5-3-0 0-3-0 5-3-0 6-2-0 3-4-0

Plate Offsets (X,Y): [2:0-3-8,Edge], [4:0-2-8,0-3-0], [5:0-0-11,0-1-2], [6:0-0-10,0-1-2], [10:0-0-10,0-1-2], [11:22-0-12,13-7-14], [12:0-2-8,0-3-0], [14:0-3-8,Edge]

LOADING (psf)	SPACING 2-0-0	CSI	DEFL	in (loc)	l/defl	L/d	PLATES	GRIP
TCLL 30.0	Plates Increase 1.15	TC 0.83	Vert(LL)	-0.37 20-21	>471	240	MT20	197/144
TCDL 10.0	Lumber Increase 1.15	BC 0.95	Vert(TL)	-0.57 17-18	>277	180	MII18	141/138
BCLL 0.0 *	Rep Stress Incr YES	WB 0.54	Horz(TL)	-0.03 20	n/a	n/a		
BCDL 10.0	Code FBC2010/TPI2007	(Matrix)					Weight: 146 lb	FT = 0%

LUMBER
TOP CHORD 2x4 SPF No.2 *Except* 5-7,9-11: 2x6 SPF No.2
BOT CHORD 2x4 SYP No.1
WEBS 2x3 SPF Stud *Except* 20-23,19-24: 2x4 SYP No.1, 4-20,12-19: 2x4 SPF No.2, 6-23,10-24: 2x4 SPF Stud

BRACING
TOP CHORD Structural wood sheathing directly applied or 4-6-4 oc purlins, except end verticals[P]
BOT CHORD Rigid ceiling directly applied or 2-2-0 oc bracing.
WEBS 1 Row at midpt 4-20, 12-19
JOINTS 1 Brace at Jt(s): 23, 24, 8

REACTIONS (lb/size) 2=852/0-1-8 (min. 0-1-8), 20=696/0-1-8 (min. 0-1-8), 19=610/0-1-8 (min. 0-1-8), 16=939/0-1-8 (min. 0-1-8)
Max Horz 2=-273(LC 2), 16=273(LC 2)
Max Uplift2=-446(LC 8), 20=-253(LC 8), 19=-208(LC 8), 16=-488(LC 8)

FORCES (lb) - Maximum Compression/Maximum Tension
TOP CHORD 1-2=0/9, 2-3=-1235/972, 3-4=-1200/1014, 4-5=-463/380, 5-6=-477/484, 6-7=-175/479, 7-8=-113/484, 8-9=-113/484, 9-10=-175/479, 10-11=-477/484, 11-12=-463/380, 12-13=-717/412, 13-14=-728/437, 14-15=0/9, 20-23=-396/345, 19-24=-396/345
BOT CHORD 2-22=-1037/1021, 21-22=-1037/1021, 20-21=-1037/1021, 18-19=-476/558, 17-18=-476/558, 16-17=-476/558, 14-16=-163/587
WEBS 4-25=-821/869, 20-25=-822/860, 19-26=-447/291, 12-26=-435/299, 4-22=0/330, 12-17=-281/590, 21-25=0/65, 18-26=0/67, 6-23=-450/391, 10-24=-450/391

REQUIRED FIELD JOINT CONNECTIONS - Maximum Compression (lb)/ Maximum Tension (lb)/ Maximum Shear (lb)/ Maximum Moment (lb-in)
7=134/485/158/0, 9=134/485/158/0, 23=450/391/212/0, 24=450/391/212/0

NOTES
1) This truss has been checked for uniform roof live load only, except as noted.
2) Wind: ASCE 7-10; 177mph (3-second gust) Vasd=137mph; TCDL=6.0psf; BCDL=6.0psf; h=15ft; B=45ft; L=30ft; eave=4ft; Cat. II; Exp C; Encl., GCpi=0.18; MWFRS (directional) and C-C Corner(3) -0-10-0 to 3-4-0, Exterior(2) 3-4-0 to 26-4-1, Corner(3) 26-4-1 to 30-7-0 zone;C-C for members and forces & MWFRS for reactions shown; Lumber DOL=1.60 plate grip DOL=1.60
3) Provide mechanical connection (by others) of truss to bearing plate capable of withstanding 446 lb uplift at joint 2, 253 lb uplift at joint 20, 208 lb uplift at joint 19 and 488 lb uplift at joint 16.
4) All plates are MT20 plates unless otherwise indicated.
5) See BEH18 DETAILS for plate placement.
6) Provisions must be made to prevent lateral movement of hinged member(s) during transportation.
7) All additional member connections shall be provided by others for forces as indicated.
8) This truss has been designed for a 10.0 psf bottom chord live load nonconcurrent with any other live loads.
9) * This truss has been designed for a live load of 20.0psf on the bottom chord in all areas where a rectangle 3-6-0 tall by 2-0-0 wide will fit between the bottom chord and any other members.
10) Provide mechanical connection (by others) of truss to bearing plate at joint(s) 2, 20, 19, 16.

LOAD CASE(S) Standard

These prints comply with the Florida Manufactured Building Act and adopted Codes and adhere to the following criteria:

APPROVED BY
NTA INC.

Const. Type:	VB - unprotected
Occupancy:	R-3
Allowable No.	
of Floors:	One (1)
Wind Velocity:	126 MPH - Ultimate
Fire Rating of	
Ext. Walls:	0 hr
Plan No.:	MFT-2530-EZ-476-1
Allow. Floor Load:	40 PSF
Approval Date:	8/3/2012
Manufacturer:	Southern Energy Homes, Inc.

PHILLIP E. ROBBINS LICENSE 49870 STATE OF FLORIDA PROFESSIONAL ENGINEER

Job	Truss	Truss Type	Qty	Ply	Wood Perfect, LLC
WP12034 P177-6FL M373-~4	P177-6FL	KINGPOST	1	1	P177-6 Florida 2010

P.E. Robbins, Inc., Victoria, IL 61485, PER

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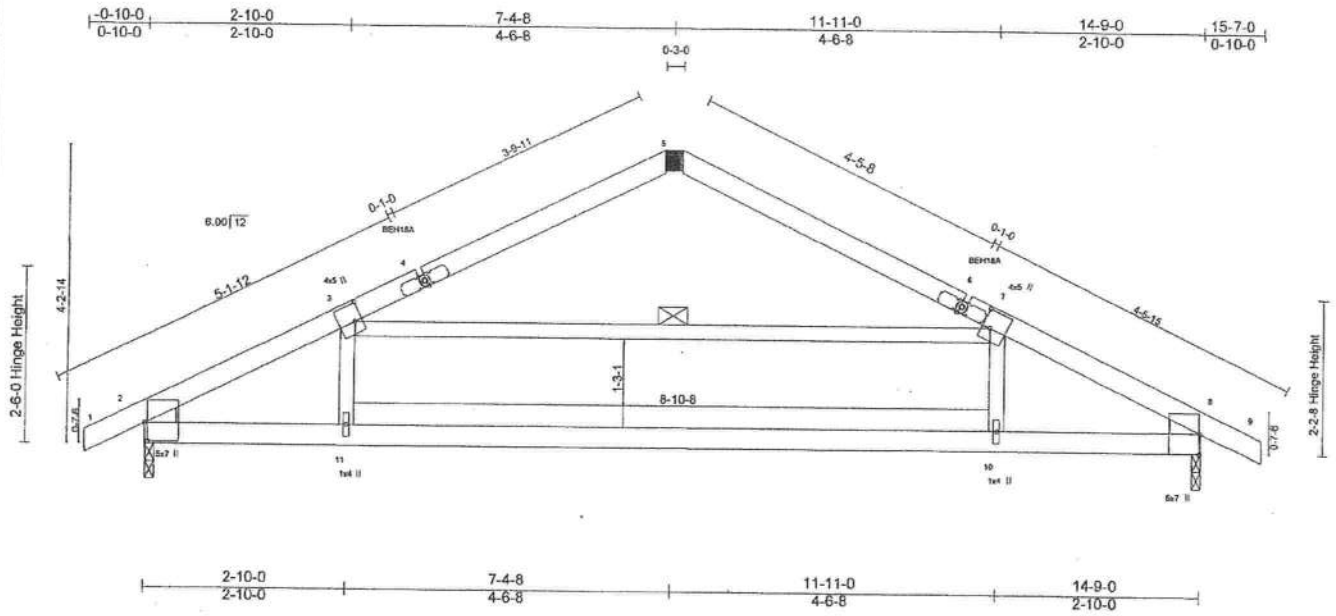

Plate Offsets (X,Y): [2:0-3-2,0-0-6], [3:0-3-0,0-1-4], [4:0-0-5,0-1-2], [6:0-0-5,0-1-2], [7:0-3-0,0-1-6], [8:0-3-8,Edge]

LOADING (psf)		SPACING	2-0-0	CSI		DEFL	in	(loc)	l/defl	L/d	PLATES	GRIP
TCLL	30.0	Plates Increase	1.15	TC	0.64	Vert(LL)	-0.26	10-11	>670	240	MT20	197/144
TCDL	10.0	Lumber Increase	1.15	BC	0.94	Vert(TL)	-0.40	10-11	>440	180	MI18	141/138
BCLL	0.0	Rep Stress Incr	YES	WB	0.72	Horz(TL)	0.03	8	n/a	n/a		
BCDL	10.0	Code FBC2010/TPI2007		(Matrix)							Weight: 48 lb	FT = 0%

LUMBER
TOP CHORD 2x4 SPF No.2
BOT CHORD 2x4 SPF No.2
WEBS 2x3 SPF Stud
WEDGE
Left: 2x3 SPF Stud, Right: 2x3 SPF Stud

BRACING
TOP CHORD Structural wood sheathing directly applied or 4-9-8 oc purlins. [P]
BOT CHORD Rigid ceiling directly applied or 2-2-0 oc bracing.
WEBS 1 Row at midpt 3-7

REACTIONS (lb/size) 2=803/0-1-8 (min. 0-1-8), 8=803/0-1-8 (min. 0-1-8)
Max Horz 2=172(LC 8)
Max Uplift2=-472(LC 9), 8=-472(LC 9)

FORCES (lb) - Maximum Compression/Maximum Tension
TOP CHORD 1-2=0/9, 2-3=-1287/995, 3-4=-437/424, 4-5=-339/444, 5-6=-338/426, 6-7=-427/407, 7-8=-1317/1043, 8-9=0/9
BOT CHORD 2-11=-781/1073, 10-11=-781/1073, 8-10=-781/1073
WEBS 3-11=-59/319, 7-10=-47/339, 3-7=-771/750

REQUIRED FIELD JOINT CONNECTIONS - Maximum Compression (lb)/ Maximum Tension (lb)/ Maximum Shear (lb)/ Maximum Moment (lb-in)
5=276/446/235/0

NOTES
1) Unbalanced roof live loads have been considered for this design.
2) Wind: ASCE 7-10; 177mph (3-second gust) Vasd=137mph; TCDL=6.0psf; BCDL=6.0psf; h=25ft; B=45ft; L=24ft; eave=4ft; Cat. II; Exp C; Encl., GCpi=0.18; MWFRS (directional) and C-C Exterior(2) zone;C-C for members and forces & MWFRS for reactions shown; Lumber DOL=1.33 plate grip DOL=1.33
3) All plates are MT20 plates unless otherwise indicated.
4) See BEH18 DETAILS for plate placement.
5) Provisions must be made to prevent lateral movement of hinged member(s) during transportation.
6) All additional member connections shall be provided by others for forces as indicated.
7) This truss has been designed for a 10.0 psf bottom chord live load nonconcurrent with any other live loads.
8) Provide mechanical connection (by others) of truss to bearing plate at joint(s) 2, 8.
9) One RT7 USP connectors recommended to connect truss to bearing walls due to UPLIFT at jt(s) 2 and 8. This connection is for uplift only and does not consider lateral forces.

LOAD CASE(S) Standard

These prints comply with the Florida Manufactured Building Act and adopted Codes and adhere to the following criteria:

APPROVED BY
NTA INC.

Const. Type:	VB - unprotected
Occupancy:	R-3
Allowable No. of Floors:	One (1)
Wind Velocity:	126 MPH - Ultimate
Fire Rating of Ext. Walls:	0 hr
Plan No.:	MFT-2530-EZ-476-1
Allow. Floor Load:	40 PSF
Approval Date:	8/3/2012
Manufacturer:	Southern Energy Homes, Inc.

PHILLIP E. ROBBINS LICENSE No. 49070 STATE OF FLORIDA PROFESSIONAL ENGINEER
8/1/12

PRODUCT APPROVAL SPECIFICATION SHEET

Manufacturer: Southern Energy Homes Plan #: MTF-2530-EZ-476-1

As required by Florida Statue 553.842 and Florida Administrative Code 9N-3, the below listed information and the product approval number(s) on these building components reflect those utilized on the manufactured building for which a DCA insignia is sought.

Category	Manufacturer	Product Description	Approval #(s)
EXTERIOR DOORS			
Swing / Patio	Dunbarton		FL15362
WINDOWS			
Single Hung	Kinro	9750	FL993.1, FL993.2
PANEL WALL			
Lap Siding	James Hardie	Cemplank	FL-13192
Soffit	James Hardie	Hardie Soffit/Cem Soffit	FL13265.1
ROOFING PRODUCT			
Shingles	Owens Corning	Classic	FL10674
Shingles	Certain Teed	Asphalt Shingle	FL5444
Underlayment	Tamko	15 UL (No. 15 Type 1 Asphalt Felt)	FL12328
Asphalt Cement	Tamko	Tam-Pro 856 Premium SBS Adhesive	FL1960.1
Asphalt Cement	Tamko	Tam-Pro Q-20 Premium SBS Flash	FL1960.1
SHUTTERS			
N/A			
SKYLIGHT			
N/A			
STRUCTURAL COMPONENTS			
Truss Plates (16, 18 & 20ga)	MiTek		FL2197-R3
Uplift Strap	SimpsonStrongTie	LSTA18, CS22, CS16, CS14	FL10852
Uplift Strap	SimpsonStrongTie	LTS18, HTS16	FL10456
NEW EXTERIOR ENVELOPE PRODUCTS			
N/A			

Florida Manufactured Building Act and adopted Codes and adhere to the following criteria:

Occupancy:	R-3
Allowable No. of Floors:	One (1)
Wind Velocity:	126 MPH - Ultimate
Fire Rating of Ext. Walls:	0 hr.
Plan No.:	MFT-2530-EZ-476-1
Allow. Floor Load:	40 PSF
Approval Date:	7/18/2012
Manufacturer:	Southern Energy Homes, Inc.

APPROVED BY

NTA INC.

The products listed below did not demonstrate product approval at plan review. I understand that at the time of inspection of these products, the following information must be available to the inspector at the manufacturing plant: (1) Copy of product approval from the Local or State Building Commission, or supply all of the information listed on Form No. 9B-72.130(5). (2) Copy of the applicable manufacturer's installation requirements.

I understand these products may have to be removed if approval cannot be demonstrated during inspection.

These prints comply with the Florida Manufactured Building Act and adopted Codes and adhere to the following criteria:

APPROVED BY

NTA INC.

Const. Type:	VB - unprotected
Occupancy:	R-3
Allowable No. of Floors:	One (1)
Wind Velocity:	126 MPH - Ultimate
Fire Rating of Ext. Walls:	0 hr
Plan No.:	MFT-2530-EZ-476-1
Allow. Floor Load:	40 PSF
Approval Date:	7/18/2012
Manufacturer:	Southern Energy Homes, Inc.

Steven Phillips

Manufacturer's Authorized Agent Signature

Steven Phillips 7-10-12

Printed Name Date

FORM 405-10

FLORIDA ENERGY EFFICIENCY CODE FOR BUILDING CONSTRUCTION

Florida Department of Business and Professional Regulation - Residential Performance Method

Project Name:	EZ-476-1	Builder Name:	
Street:		Permit Office:	
City, State, Zip:	Lake City , FL ,	Permit Number:	
Owner:		Jurisdiction:	
Design Location:	FL, Jacksonville		

1. New construction or existing	New (From Plans)	9. Wall Types (1626.0 sqft.)	Insulation	Area
2. Single family or multiple family	Single-family	a. Frame - Wood, Exterior	R=17.2	1626.00 ft²
3. Number of units, if multiple family	1	b. N/A	R=	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)	1928	10. Ceiling Types (1928.0 sqft.)	Insulation	Area
Conditioned floor area below grade (ft²)	0	a. Under Attic (Vented)	R=38.0	1928.00 ft²
7. Windows(254.9 sqft.) Description	Area	b. N/A	R=	ft²
a. U-Factor: Dbl, U=0.37	254.91 ft²	c. N/A	R=	ft²
SHGC: SHGC=0.28		11. Ducts		R ft²
b. U-Factor: N/A	ft²	a. Sup: Attic, Ret: Attic, AH: RoomsInBlock1		6 385.6
SHGC:		12. Cooling systems	kBtu/hr	Efficiency
c. U-Factor: N/A	ft²	a. Central Unit	24.1	SEER:13.00
SHGC:		13. Heating systems	kBtu/hr	Efficiency
d. U-Factor: N/A	ft²	a. Electric Heat Pump	23.1	HSPF:7.70
SHGC:		14. Hot water systems		
Area Weighted Average Overhang Depth:	1.000 ft.	a. Electric		Cap: 40 gallons
Area Weighted Average SHGC:	0.280			EF: 0.970
8. Floor Types (1928.0 sqft.)	Insulation Area	b. Conservation features		
a. Crawlspace	R=19.0 1928.00 ft²	None		
b. N/A	R= ft²	15. Credits		Pstat
c. N/A	R= ft²			

Glass/Floor Area: 0.132

Total Proposed Modified Loads: 37.63

Total Standard Reference Loads: 51.77

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: 8-3-2012

MF1-2530-EZ-476-1

- **Compliance requires certification by the air handler unit manufacturer that the air handler enclosure qualifies as certified factory-sealed in accordance with 403.2.2.1.1.**
- **Compliance requires completion of a Florida Air Barrier and Insulation Inspection Checklist**

These prints comply with the Florida Manufactured Building Act and adopted Codes and adhere to the following criteria:

Const. Type:	VB - unprotected
Occupancy:	R-3
Allowable No. of Floors:	One (1)
Wind Velocity:	126 MPH - Ultimate
Fire Rating of Ext. Walls:	0 hr
Plan No.:	MF1-2530-EZ-476-1
Allow. Floor Load:	40 PSF
Approval Date:	7/18/2012
Manufacturer:	Southern Energy Homes, Inc.

APPROVED BY

7/17/2012 [illegible] PM

NTA INC.

PROJECT

Title:	EZ-476-1	Bedrooms:	3	Address Type:	Lot Information
Building Type:	FLProp2010	Conditioned Area:	1928	Lot #	
Owner:		Total Stories:	1	Block/SubDivision:	
# of Units:	1	Worst Case:	No	PlatBook:	
Builder Name:		Rotate Angle:	0	Street:	
Permit Office:		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, Jacksonville	FL_JACKSONVILLE_INT	2	32	93	70	75	1281	49	Medium

BLOCKS

Number	Name	Area	Volume
1	Block1	1928	17352

SPACES

Number	Name	Area	Volume	Kitchen	Occupants	Bedrooms	Infil ID	Finished	Cooled	Heated
1	RoomsInBlock1	1928	17352	Yes	3	3	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	1 ft	0	1928 ft²	19	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	2088 ft²	402 ft²	Medium	0.96	No	0.9	No	0	22.6

ATTIC

√	#	Type	Ventilation	Vent Ratio (1 in)	Area	RBS	IRCC
_____	1	Full attic	Vented	300	1928 ft²	N	N

CEILING

√	#	Ceiling Type	Space	R-Value	Area	Framing Frac	Truss Type
_____	1	Under Attic (Vented)	RoomsInBlock1	38	1928 ft²	0.11	Wood

These prints comply with the Florida Manufactured Building Act and adopted Codes and adhere to the following criteria:

APPROVED BY

NTA INC.

Const. Type:	VB - unprotected
Occupancy:	R-3
Allowable No. of Floors:	One (1)
Wind Velocity:	126 MPH - Ultimate
Fire Rating of Ext. Walls:	0 hr
Plan No.:	MFT-2530-EZ-476-1
Allow. Floor Load:	40 PSF
Approval Date:	7/18/2012
Manufacturer:	Southern Energy Homes, Inc.

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	17.2	60	4	9	0	543 ft²		0.23	0.75	0
	2	S	Exterior	Frame - Wood	RoomsInBloc	17.2	60	4	9	0	543 ft²		0.23	0.75	0
	3	E	Exterior	Frame - Wood	RoomsInBloc	17.2	30	0	9	0	270 ft²		0.23	0.75	0
	4	W	Exterior	Frame - Wood	RoomsInBloc	17.2	30	0	9	0	270 ft²		0.23	0.75	0

DOORS

√	#	Ornt	Door Type	Space	Storms	U-Value	Width Ft	Width In	Height Ft	Height In	Area
	1	S=>E	Insulated	RoomsInBloc	None	0.460000	3	0	6	8	20 ft²
	2	E=>N	Insulated	RoomsInBloc	None	0.460000	3	0	6	8	20 ft²
	3	N=>W	Insulated	RoomsInBloc	None	0.460000	3	0	6	8	20 ft²

WINDOWS

Orientation shown is the entered, Proposed orientation.

√	#	Ornt	Wall ID	Frame	Panes	NFRC	U-Factor	SHGC	Storms	Area	Overhang Depth	Overhang Separation	Int Shade	Screening
	1	N=>W	1	Vinyl	Low-E Double	Yes	0.37	0.28	N	92.01041	1 ft 0 in	0 ft 0 in	HERS 2006	None
	2	N=>W	1	Vinyl	Low-E Double	Yes	0.37	0.28	N	8.578125	1 ft 0 in	0 ft 0 in	HERS 2006	None
	3	W=>S	4	Vinyl	Low-E Double	Yes	0.37	0.28	N	8.578125	1 ft 0 in	0 ft 0 in	HERS 2006	None
	4	S=>E	2	Vinyl	Low-E Double	Yes	0.37	0.28	N	63.36805	1 ft 0 in	0 ft 0 in	HERS 2006	None
	5	E=>N	3	Vinyl	Low-E Double	Yes	0.37	0.28	N	63.36805	1 ft 0 in	0 ft 0 in	HERS 2006	None
	6	E=>N	3	Vinyl	Low-E Double	Yes	0.37	0.28	N	12.67361	1 ft 0 in	0 ft 0 in	HERS 2006	None
	7	N=>W	1	Vinyl	Low-E Double	Yes	0.37	0.28	N	6.336805	1 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	1820.5	99.947	187.96	0.2771	6.2952

HEATING SYSTEM

√	#	System Type	Subtype	Efficiency	Capacity	Block	Ducts
	1	Electric Heat Pump	None	HSPF: 7.7	23.1 kBtu/hr	1	sys#1

COOLING SYSTEM

√	#	System Type	Subtype	Efficiency	Capacity	Air Flow	SHR	Block	Ducts
	1	Central Unit	None	SEER: 13	24.1 kBtu/hr	720 cfm	0.75	1	sys#1

These prints comply with the Florida Manufactured Building Act and adopted Codes and adhere to the following criteria:

APPROVED BY

NTA INC.

Const. Type:	VB - unprotected
Occupancy:	R-3
Allowable No. of Floors:	One (1)
Wind Velocity:	126 MPH - Ultimate
Fire Rating of Ext. Walls:	0 hr
Plan No.:	MFT-2530-EZ-476-1
Allow. Floor Load:	40 PSF
Approval Date:	7/18/2012
Manufacturer:	Southern Energy Homes, Inc.

HOT WATER SYSTEM

√	#	System Type	SubType	Location	EF	Cap	Use	SetPnt	Conservation
_____	1	Electric	None	RoomsInBlock	0.97	40 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	Supply R-Value	Supply Area	Return Location	Return Area	Leakage Type	Air Handler	CFM 25	Percent Leakage	QN	RLF	HVAC # Heat	HVAC # Cool
_____	1	Attic	6	385.6 ft	Attic	96.4 ft²	DSE=0.88	RoomsInBl	0.0 cfm	0.00 %	0.00	0.60	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]	[X]	[X]	[X]	[X]	[X]	[X]	[X]	[X]
Heating	[X]	[X]	[X]	[X]	[X]	[X]	[X]	[X]	[X]	[X]	[X]	[X]
Venting	[X]	[X]	[X]	[X]	[X]	[X]	[X]	[X]	[X]	[X]	[X]	[X]

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

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Allow. Floor Load:	40 PSF
Approval Date:	7/18/2012
Manufacturer:	Southern Energy Homes, Inc.

FORM 405-10

Florida Code Compliance Checklist

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

ADDRESS:	PERMIT #:
Lake City, FL,	

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.	

Designed and Manufactured in accordance with the Florida Manufactured Building Act and adopted Codes and adhere to the following criteria:

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Fire Rating of Ext. Walls:	0 hr
Plan No.:	MFT-2530-EZ-476-1
Allow. Floor Load:	40 PSF
Approval Date:	7/18/2012
Manufacturer:	Southern Energy Homes, Inc.

APPROVED BY
NTA INC.

ENERGY PERFORMANCE LEVEL (EPL) DISPLAY CARD

ESTIMATED ENERGY PERFORMANCE INDEX* = 73

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

, 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?	No	
6. Conditioned floor area (ft²)	1928	

7. Windows**

	Description	Area
a. U-Factor: SHGC:	Dbl, U=0.37 SHGC=0.28	254.91 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: 1.000 ft.
Area Weighted Average SHGC: 0.280

8. Floor Types

	Insulation	Area
a. Crawlspace	R=19.0	1928.00 ft²
b. N/A	R=	ft²
c. N/A	R=	ft²

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Fire Rating of Ext. Walls:	0 hr
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Approval Date:	7/18/2012
Manufacturer:	Southern Energy Homes, Inc.

9. Wall Types

	Insulation	Area
a. Frame - Wood, Exterior	R=17.2	1626.00 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=38.0	1928.00 ft²
b. N/A	R=	ft²
c. N/A	R=	ft²

11. Ducts

	R	ft²
a. Sup: Attic, Ret: Attic, AH: RoomsInBlock1	6	385.6

12. Cooling systems

	kBtu/hr	Efficiency
a. Central Unit	24.1	SEER:13.00

13. Heating systems

	kBtu/hr	Efficiency
a. Electric Heat Pump	23.1	HSPF:7.70

14. Hot water systems

a. Electric	Cap: 40 gallons
	EF: 0.97
b. Conservation features	
None	

15. Credits Pstat

APPROVED BY

NTA INC

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: _____

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

*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.

BEAM CONFIGURATION	GROUND SNOW LOAD (PSF) 20. PSF	30. PSF	40. PSF	50. PSF
(1) 1.5x5.5 LAM beam (see chart) LAM	8 ft 3 in	7 ft 2 in	6 ft 6 in	6 ft 0 in
(1) 1.5x7.25 LAM beam (see chart) LAM	10 ft 7 in	9 ft 4 in	8 ft 7 in	8 ft 0 in
(1) 1.5x9.25 LAM beam (see chart) LAM	13 ft 3 in	11 ft 8 in	10 ft 9 in	9 ft 8 in
(1) 1.5x12 LAM beam (see chart) LAM	16 ft 9 in	14 ft 9 in	13 ft 7 in	12 ft 3 in
(1) 1.5x16 LAM beam (see chart) LAM	21 ft 11 in	19 ft 4 in	17 ft 10 in	16 ft 1 in
(1) 1.5x20 LAM beam (see chart) LAM	27 ft 0 in	23 ft 10 in	21 ft 11 in	19 ft 9 in
(1) 1.5x24 LAM beam (see chart) LAM	32 ft 1 in	28 ft 3 in	26 ft 0 in	23 ft 5 in
(1) 2 x 6 #3 SPF	3 ft 8 in	3 ft 3 in	3 ft 2 in	2 ft 8 in
(1) 2 x 8 #3 SPF	4 ft 8 in	4 ft 2 in	4 ft 0 in	3 ft 5 in
(1) 2 x 10 #3 SPF	5 ft 9 in	5 ft 1 in	4 ft 11 in	4 ft 2 in
(1) 2 x 12 #3 SPF	6 ft 8 in	5 ft 11 in	5 ft 8 in	4 ft 11 in
(1) 2 x 6 #2 SPF	4 ft 11 in	4 ft 4 in	4 ft 2 in	3 ft 7 in
(1) 2 x 8 #2 SPF	6 ft 3 in	5 ft 6 in	5 ft 4 in	4 ft 7 in
(1) 2 x 10 #2 SPF	7 ft 8 in	6 ft 9 in	6 ft 6 in	5 ft 7 in
(1) 2 x 12 #2 SPF	8 ft 10 in	7 ft 10 in	7 ft 7 in	6 ft 6 in

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Occupancy:	R-3
Allowable No of Floors:	One (1)
Wind Velocity:	126 MPH - Ultimate
Fire Rating of Ext. Walls:	0 hr
Plan No.:	MET-2630-EZ-476-1
Allow. Floor Load:	40 PSF
Approval Date:	7/18/2012
Manufacturer:	Southern Energy Homes, Inc.

APPROVED BY

NTA INC.

MINIMUM RIDGEBEAM DEPTH AT CRITICAL SECTION OF TAPERED RIDGEBEAM

(MEMBER QTY) FULL BEAM DEPTH	20. PSF	30. PSF	40. PSF	50. PSF
(1) 1.5x5.5 LAM beam (see chart) LAM	3.45"	3.82"	4.19"	4.51"
(1) 1.5x7.25 LAM beam (see chart) LAM	4.44"	4.94"	5.52"	5.99"
(1) 1.5x9.25 LAM beam (see chart) LAM	5.52"	6.15"	6.85"	7.18"
(1) 1.5x12 LAM beam (see chart) LAM	6.98"	7.77"	8.65"	9.06"
(1) 1.5x16 LAM beam (see chart) LAM	9.1"	10.12"	11.27"	11.8"
(1) 1.5x20 LAM beam (see chart) LAM	11.18"	12.44"	13.84"	14.49"
(1) 1.5x24 LAM beam (see chart) LAM	13.22"	14.71"	16.37"	17.13"

APPROVED LAM BEAMS- WHEN USING GRADE LAM BEAM (SEE CHART)

2.0 MasterPlank

Murphy 2.0E 3100 Fb LVL

2.0e Microllam LVL

GENERAL NOTES:

1 180" MAX. UNIT.

2 WIND SPEED: 130 MPH MAX.

3 MIN. DEPTH AT CRITCAL SECTION IS MEASURED AT INSIDE FACE OF EXTERIOR WALL.

4 THIS DETAIL IS APPLICABLE TO ONLY LVL BEAMS WITH AN FV=135 PSI OR BETTER.

5 RIDGE BEAM MUST BE IN FULL WOOD TO WOOD CONTACT WITH TOP PLATE FOR SPECIFIED BEARING LENGTH.

6 SEE COLUMN DESIGNS FOR MINIMUM BEARING LENGTH OR BEAM STIFFENER REQUIREMENTS.

7 (F): INDICATES THAT BEAM MEMBERS ARE LAYED FLAT; OTHERWISE ALL BEAMS ARE ON EDGE

8 DESIGN IN ACCORDANCE WITH THE IRC (2006)

9 DOUBLE BEAMS MAY BE STACKED VERSES DOUBLE PLY IF MEMBERS ARE SAME SIZE AND MATERIAL AND REQUIRED FASTENERS ARE EQUALLY DIVIDED BETWEEN BEAMS.

MAXIMUM LIVE AND DEAD LOADS:

BOTTOM CHORD LIVE LOAD: 10 PSF

TOP CHORD DEAD: 7 PSF

BOTTOM CHORD DEAD: 8 PSF

FLOOR LIVE LOAD: 0 PSF

BEAMS SUPPORT SECOND FLOOR LIVING AREA

CMH Engineering

calc. ref. CRC-60.3.R.K.K_20-2.20

1 STORY- W.O ATTIC

RIDGE BEAM SPAN CHART

Drawn by: jww Ver. 6.1

Date: 01/19/10

APPROVAL #:

RC-60.3.R.K.K_.20-2

Southern Energy Homes, Inc.

P.O. Box 390 - 18025 Co. Rd. 41 Addison, AL 35540
Ph: (256) 747-8589 Fax: (256) 747-8586
Email: semodular@sehomes.com

APPROVAL STAMP

These prints comply with the Florida Manufactured Building Act and adopted Codes and adhere to the following criteria:

Const. Type:	VB - unprotected
Occupancy:	R-3
Allowable No. of Floors:	One (1)
Wind Velocity:	126 MPH - Ultimate
Fire Rating of Ext. Walls:	0 hr
Plan No.:	MFT-2530-EZ-476-1
Allow. Floor Load:	40 PSF
Approval Date:	7/18/2012
Manufacturer:	Southern Energy Homes, Inc.

APPROVED BY NTA INC.

TITLE

TYPICAL DORMER DETAIL

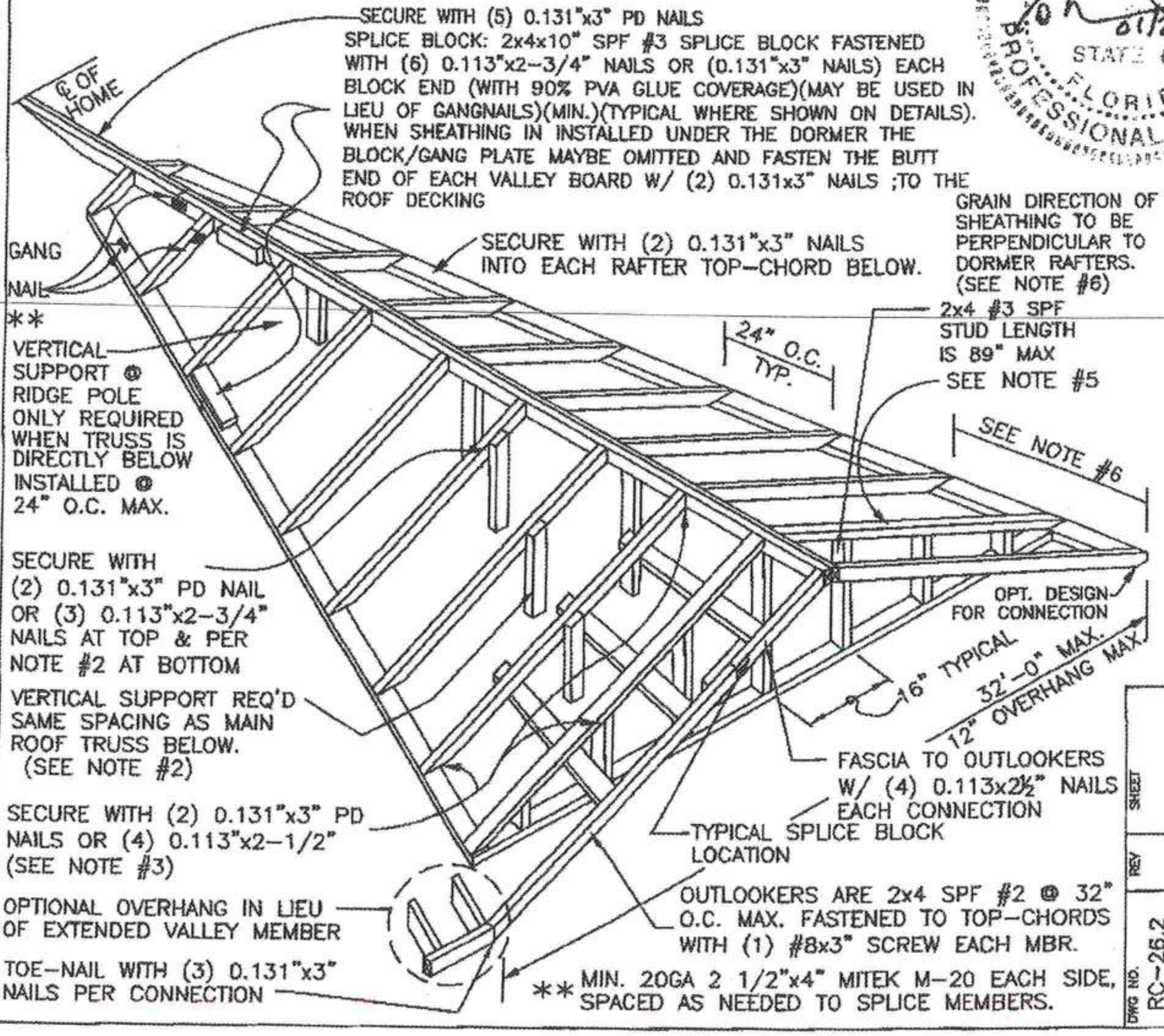
UP TO 120 MPH (3 SEC. GUSTS)

BY MDW | DATE 8-1-05

NOTES:

1. ALL WOOD TO BE #3 SPF OR BETTER 2x4 MIN. OR AS NOTED.
2. VERTICAL SUPPORT POSTS SHALL BE SECURED TO TOP CHORD OF TRUSS (24" O.C. MAX) DIRECTLY BELOW WITH (2) #8x3" SCREWS. TOENAILED ONLY.
3. FRONT DORMER TRUSS SHEATHING W/ HARDBOARD SIDING, 3/8" MIN. RATED SHEATHING (ANY INDEX) OR EQUIV. SECURED TO ALL FRAMING W/ 0.099"x1 3/4" NAILS @ 2-1/2" O.C.
4. REFERENCE OTHER DETAILS FOR LADDER OVERHANG CONSTRUCTION.
5. SECURE FRONT DORMER WALL TO ROOF BELOW WITH (2) #8x3" @ EACH TRUSS.
6. ROOF SHEATHING TO BE CONTINUOUS THRU THIS AREA. ROOF SHEATHING SHALL NOT BE JOINTED OVER FRONT DORMER TRUSS.
7. O.S.B. OR PLYWOOD SHEATHING TO BE 24/16 INDEX MIN.
8. TRUSSES BENEATH DORMER CONSTRUCTION TO BE LISTED FOR 10 PSF DEAD LOAD.
9. TOENAIL DORMER RIDGE TOGETHER WITH 0.131"x3" NAILS @ 8" O.C.
10. REFER TO RC SECTION FOR TRUSS TO SIDEWALL CONNECTION.

JOHN C. DOEDEN LICENSE No. STATE OF FLORIDA PROFESSIONAL ENGINEER 01/21/2020



SHEET | REV | DWG NO. RC-26.2

Southern Energy Homes, Inc.
P.O. Box 390 - 18025 Co. Rd. 41 Addison, AL 35540
Ph: (256) 747-8589 Fax: (256) 747-8586
Email: semodular@sehomes.com

TITLE

EYEBROW DORMER

These prints comply with the Florida Manufactured Building Act and adopted Codes and adhere to the following criteria:

APPROVAL STAMP

APPROVED BY

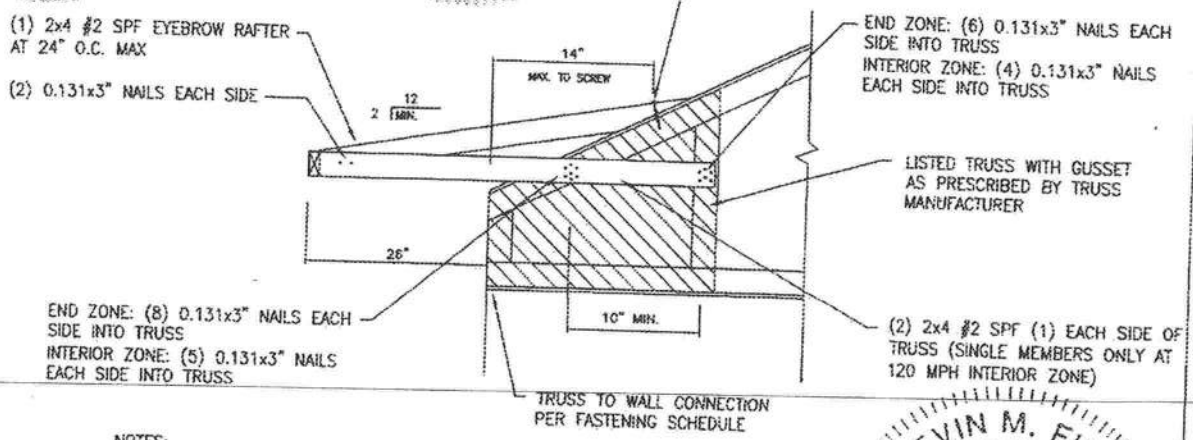
NTA INC.

BY JFB | DATE 6/15/10

Const. Type:	VB - unprotected
Occupancy:	R-3
Allowable No. of Floors:	One (1)
Wind Velocity:	126 MPH - Ultimate
Fire Rating of Ext. Walls:	0 hr
Plan No.:	MFT-2530-EZ-476-1
Allow. Floor Load:	40 PSF
Approval Date:	7/18/2012
Manufacturer:	Southern Energy Homes, Inc.

STATE OF TEXAS — KEVIN M. FINN — 94939 — REGISTERED PROFESSIONAL ENGINEER

KEVIN M. FINN — REGISTERED ENGINEER — STATE OF TENNESSEE



NOTES:

1. END ZONE IS 3' FROM END OF ROOF AND INTERIOR ZONE IS IN BETWEEN.
2. ALL LUMBER TO BE #2 SPF UNLESS OTHERWISE NOTED
3. MINIMUM SCREW PENETRATION INTO RECEIVING MEMBERS IS TO BE 2" (INCLUDES SHEATHING WHERE APPLICABLE)
4. SIDEWALL FRAMING PER CHARTS FOR 26" EAVE AND APPLICABLE UNIT WIDTH
5. DESIGNED FOR 120 AND 140 MPH WIND SPEED, EXPOSURE C WITH 6on12 MAX ROOF SLOPE.
6. DESIGNED FOR 30 PSF ROOF LIVE LOAD.

KEVIN M. FINN — LICENSE — No. 41622 — STATE OF FLORIDA — PROFESSIONAL ENGINEER

STATE OF LOUISIANA — KEVIN M. FINN — REG. No. 29942 — REGISTERED PROFESSIONAL ENGINEER — CIVIL ENGINEERING

STATE OF ARKANSAS — REGISTERED PROFESSIONAL ENGINEER — NO. 9559 — KEVIN M. FINN

COMMONWEALTH OF VIRGINIA — KEVIN M. FINN — Lic. No. 025540 — PROFESSIONAL ENGINEER

SHEET | REV | DWG NO.

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Plan No.:	MFT-2530-EZ-476-...
Allow. Floor Load:	40 PSF
Approval Date:	7/18/2012
Manufacturer:	Southern Energy Homes, Inc.

APPROVED BY NTA INC.

JOHN C. DOEDEN, P.E.
15133 County Road 22, Goshen, IN 46528

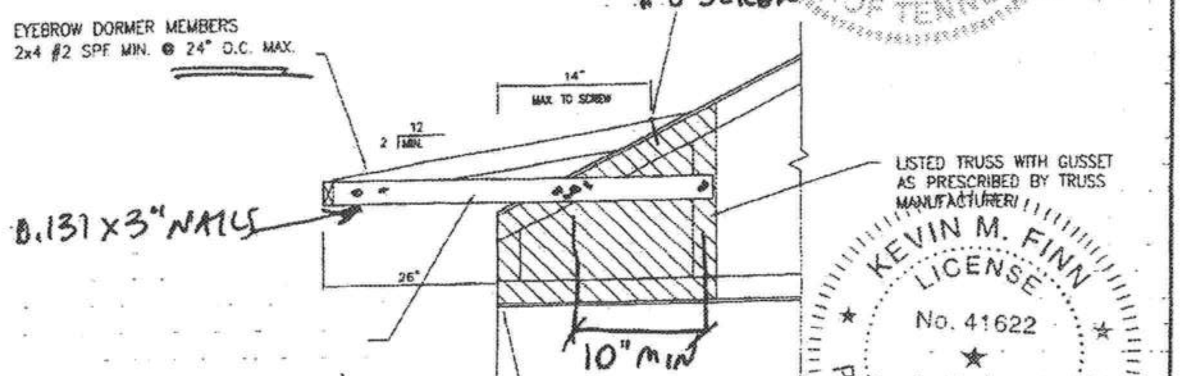
DATE: 06/17/2010 REV.

CALCULATION FOR S.E. HOMES

SUBJECT: EYEBROW EAVE

REFERENCE: IRC & ASCE 7

140 mph EXP C
MRH = 25' MAX



KEVIN M. FINN LICENSE No. 41622 STATE OF FLORIDA PROFESSIONAL ENGINEER

1) UPLIFT @ 140mph

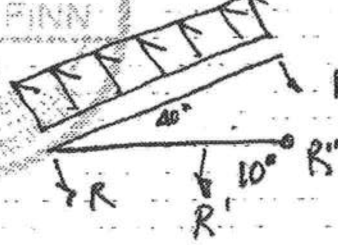
EAVE LOADS @ 10 ft² TRIB FROM ASCE 7-05 Fig 6-3 } V.L. = 110.6(1.35) = 149.3 PSF ↑

INT. = 65.7(1.35) = 88.7 PSF

D.L. IS NEGLIGIBLE

LINE LOAD @ EAVE FRAME = 2 × 149.3 = 298.6 #/Ft

INT = 2 × 88.7 = 177.4 #/Ft



R = 298.6 (40/24) = 498#

MIN. p = 498 / (82×1.6) = 3.8"

USE (2) #8 × 4" @ ENDS

R_I = 177.4 (40/24) = 296#

p = 2.2 ⟹ (1) #8 × 4 @ INT.

2) NAIL CONNECTION R = 498 & 296

L.R. = 82 (1.6) = 131# ⟹ N.R. = ... 3 min

KEVIN M. FINN REG. No. 28940 REGISTERED PROFESSIONAL ENGINEER IN CIVIL ENGINEERING

STATE OF ARKANSAS REGISTERED PROFESSIONAL ENGINEER NO. 9569 KEVIN M. FINN

COMMONWEALTH OF VIRGINIA KEVIN M. FINN Lic. No. 025540 PROFESSIONAL ENGINEER

STATE OF TEXAS KEVIN M. FINN 80939 REGISTERED PROFESSIONAL ENGINEER

KEVIN M. FINN REGISTERED ... STATE OF TENNESSEE

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Plan No.:	MFT-2530-EZ-476-1
Allow. Floor Load:	40 PSF
Approval Date:	06/17/2010
Manufacturer:	Southern Energy Homes, Inc.

APPROVED BY

JOHN C. DOEDEN , P.E.
15133 County Road 22, Goshen, IN 46528 NTA, INC.

PAGE 2 of 3

DATE 06/17/2010 REV

CALCULATION FOR S.E. Homes

SUBJECT : EYEBROW

REFERENCE: IRC & ASCE 7

3) LOAD @ R' = 498(40)/10 = 1992 #

No. NAILS ⇒ 1992/131 = 15.2 ⇒ 16

@ END ZONE ⇒ USE (2) 2x4 HORZ W/ (8) NAILS EACH SIDE

@ INT = 1184/131 = 9

4) HORZ 2X4 STRESSES

- BENDING M = Pa = 30"(498) = 14,940 in.#

(2) No.2 S-P-F ⇒ $F_b S_x$ = 875(1.5)(1.6)(1.15)(2x3.06) = 14,780 ≈ 14,940 @

- SHEAR ⇒ 498/2 = 249 #

$f_v = \frac{249}{3.5}$ = 71 psi < 135(1.6)

- DEFL $\Delta = \frac{Pa^2(L+a) \times 0.7}{3EI}$ per IRC

$= \frac{249(30)^2(40)}{3(1.4 \times 10^6)(5.36)} = 0.279"$

ALLOW = 29/180 > 29/215 OK

5) CONNECTION @ PIVOT

R" = 30(498)/10 = 1494 # @ END ⇒ 12 NAILS

888 # @ INT ⇒ 7 NAILS

STATE OF ARKANSAS ★★★ REGISTERED PROFESSIONAL ENGINEER ★★★ NO. 9559 KEVIN M. FINN

COMMONWEALTH OF VIRGINIA KEVIN M. FINN Lic. No. 025540 PROFESSIONAL ENGINEER

KEVIN M. FINN LICENSE No. 41622 STATE OF FLORIDA PROFESSIONAL ENGINEER

STATE OF LOUISIANA KEVIN M. FINN REGISTERED PROFESSIONAL ENGINEER

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Wind Velocity:	126 MPH - Ultimate
Fire Rating of Ext. Walls:	0 hr
Plan No.:	MFT-2530-EZ-476-1
Allow. Floor Load:	40 PSF
Approval Date:	7/18/2012
Manufacturer:	Southern Energy Homes, Inc.

APPROVED BY NTA, INC.

JOHN C. DOEDEN
15133 County Road 22, Goshen, IN 46528

PAGE 3 of 3

DATE 06/17/2013 REV

CALCULATION FOR S.E. Homes

SUBJECT : EYEBROW

REFERENCE:

KEVIN M. FINN — LICENSE No. 41622 — STATE OF TENNESSEE — PROFESSIONAL ENGINEER

6) SINGLE RAFTER MEMBER

- BENDING $M = \frac{wl^2}{8} = \frac{298.4/12\,(40)^2}{8} = 4973$ in-# (OK)

No. 2 S-P-F 2x4 $F_b S_x = 875(1.5)(1.6)(1.15)(3.06)$
$= 7390$ in-# (OK)

- SHEAR $f_v = \frac{298.4(40)}{24(3.5)} = 142$ psi $< 135(1.6)$ (OK)

- DEFL. $\Delta = \frac{5wl^4}{384EI} = \frac{5(24.9 \times 0.7)(40)^4}{384(1.4 \times 10^6)(5.36)} = 0.077$"
$= l/517$ (OK)

7) 120 mph W/ SINGLE HORZ MEMBER

INT. ZONE $\Rightarrow \delta = \frac{12^2}{14^2} = 0.735$

- BENDING $M = 30(296 \times 0.735) = 6524$ in-#

2x4 No. 2 SPF $\Rightarrow F_b S_x = 875(1.5)(1.6)(1.15)(3.06) = 7390$ (OK)

- SHEAR

STATE OF ARKANSAS — REGISTERED PROFESSIONAL ENGINEER — NO: 9559 — KEVIN M. FINN

COMMONWEALTH OF VIRGINIA — KEVIN M. FINN Lic. No. 025540 — PROFESSIONAL ENGINEER

KEVIN M. FINN — LICENSE No. 41622 — STATE OF FLORIDA — PROFESSIONAL ENGINEER

STATE OF LOUISIANA — KEVIN FINN — REGISTERED PROFESSIONAL ENGINEER — CIVIL ENGINEERING

SOUTHERN ENERGY HOMES
P.O. BOX 390
ADDISON, ALABAMA 35540

TITLE
ALTERNATE EYEBROW CONSTRUCTION AND ATTACHMENT

These prints comply with the Florida Manufactured Building Act and Adopted Codes and adhere to the following criteria:

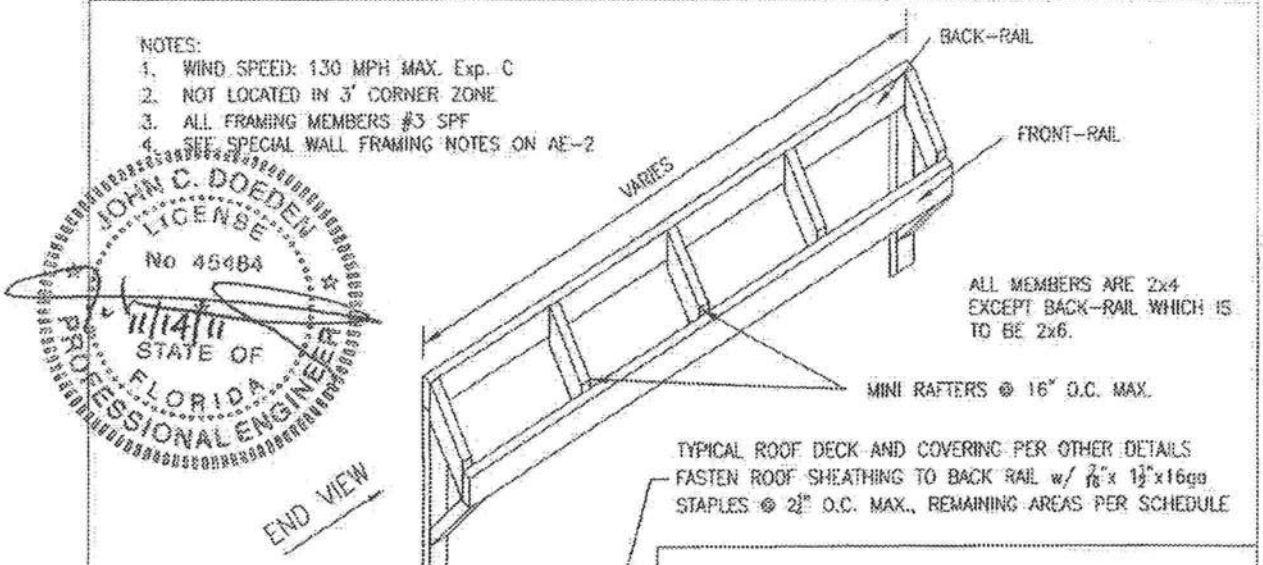
APPROVED BY
NTA INC.

Const. Type:	VB - unprotected
Occupancy:	R-3
Allowable No. of Floors:	One (1)
Wind Velocity:	126 MPH - Ultimate
Fire Rating of Ext. Walls:	0 hr
Plan No.:	MFT-2530-EZ-476-1
Allow. Floor Load:	40 PSF
Approval Date:	7/18/2012
Manufacturer:	Southern Energy Homes, Inc.

BY	DATE	CHECKED	DATE
JFB / MJR	11-15-11		

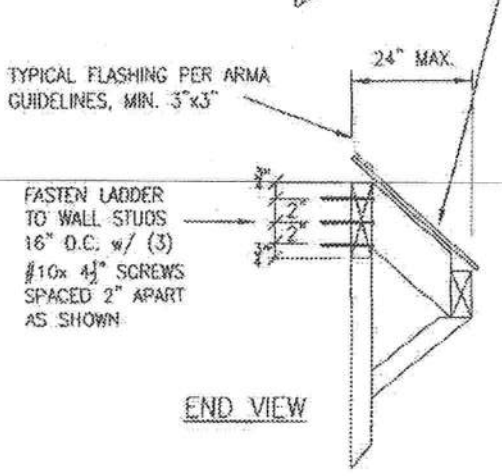
NOTES:
1. WIND SPEED: 130 MPH MAX. Exp. C
2. NOT LOCATED IN 3' CORNER ZONE
3. ALL FRAMING MEMBERS #3 SPF
4. SEE SPECIAL WALL FRAMING NOTES ON AE-2

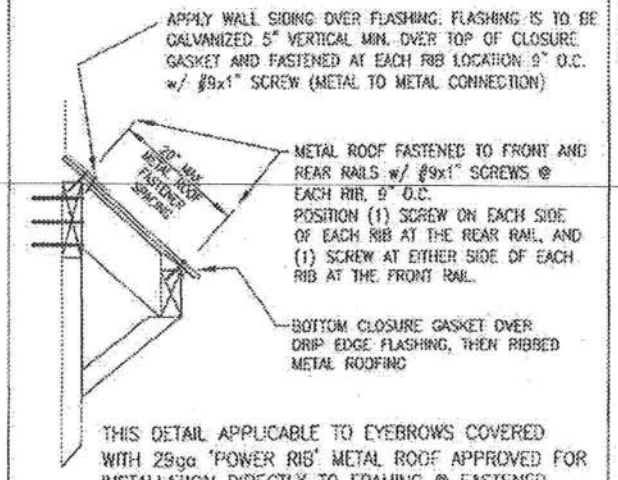
JOHN C. DOEDER LICENSE No 45484 STATE OF FLORIDA PROFESSIONAL ENGINEER 11/14/11



ALL MEMBERS ARE 2x4 EXCEPT BACK-RAIL WHICH IS TO BE 2x6.

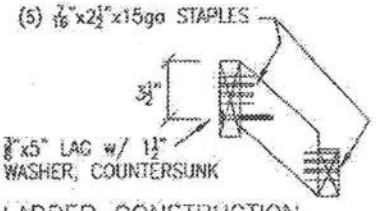
TYPICAL ROOF DECK AND COVERING PER OTHER DETAILS
FASTEN ROOF SHEATHING TO BACK RAIL w/ #8"x 1½"x16ga STAPLES @ 2½" O.C. MAX., REMAINING AREAS PER SCHEDULE





THIS DETAIL APPLICABLE TO EYEBROWS COVERED WITH 29ga 'POWER RIB' METAL ROOF APPROVED FOR INSTALLATION DIRECTLY TO FRAMING @ FASTENER SPACING BETWEEN RAILS MIN.

PROCEDURE:
1. FASTEN RAILS TO RAFTERS w/ STAPLES
2. WITH 1½" WOOD BUTTERFLY BIT, DRILL A ⅜" DEEP COUNTERSINK HOLE @ 3½" FROM TOP OF BACK-RAIL
3. DRILL A ¼" HOLE INTO RAFTERS @ LAG LOCATION
4. INSERT 1 ½" WASHER ON LAG AND LAG BACK-RAIL TO RAFTER
5. INSTALL LADDER ON HOME w/ SCREWS
6. ATTACH SHEATHING, FLASHING AND ROOF COVERING



LADDER CONSTRUCTION

SHEET	
KEY	
DWG NO.	AE-1

These prints comply with the Florida Manufactured Building Act and adopted Codes and adhere to the followng criteria:

APPROVAL STAMP

APPROVED BY NTA INC.

Const. Type:	VB - unprotected
Occupancy:	R-3
Allowable No. of Floors:	One (1)
Wind Velocity:	126 MPH - Ultimate
Fire Rating of Ext. Walls:	0 hr
Plan No.:	MFT-2530-EZ-476-1
Allow. Floor Load:	40 PSF
Approval Date:	7/18/2012
Manufacturer:	Southern Energy Homes, Inc.

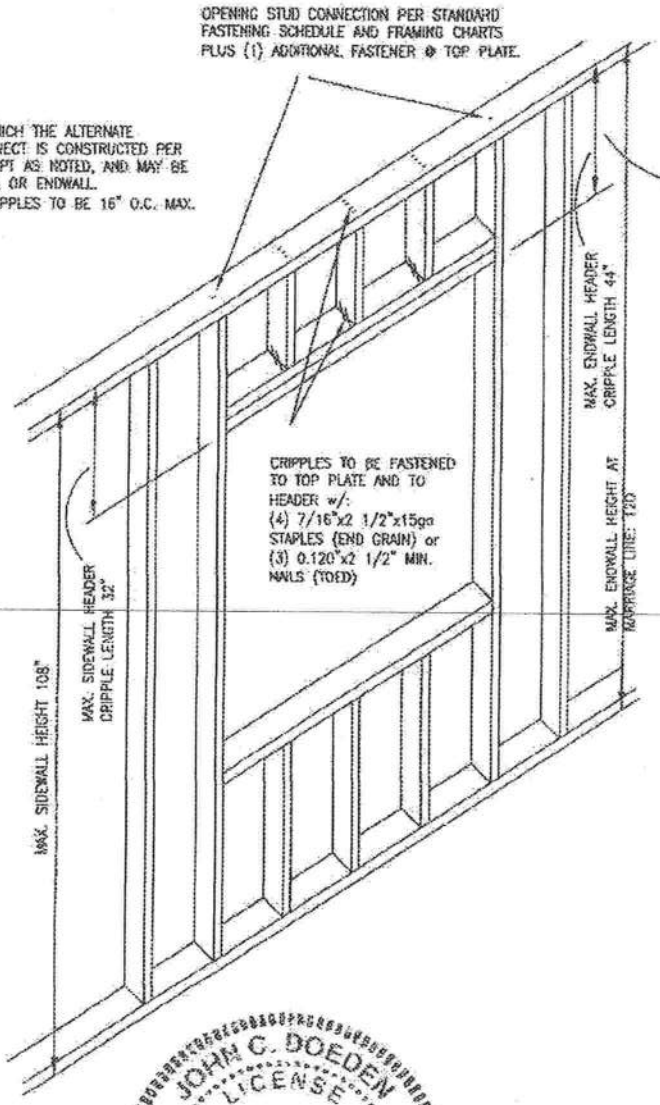
BY	DATE	CHECKED	DATE
JFD / MJR	11-15-11		

SOUTHERN ENERGY HOMES
P.O. BOX 390
ADDISON, ALABAMA 35540

TITLE

ALTERNATE EYEBROW CONSTRUCTION AND ATTACHMENT

WIND SPEED: 130 MPH MAX. Exp. C
WITH AN ATTACHED EYEBROW OVERHANG, MAX. 24" PROJECTION
EYEBROW NOT LOCATED IN 3' CORNER ZONE



JOHN C. DOEDEN
LICENSE
No 45484
STATE OF FLORIDA
PROFESSIONAL ENGINEER

SHEET	REV	DWG NO.
		AE-2

John C. Doeden
15133 County Road 22 , Goshen , IN 46528

JOHN C. DOEDEN , P.E.

DATE: 11/06/11 REV.

CALCULATION FOR

SUBJECT : STAPLE LATERAL RESISTANCE - 15 GA

REFERENCE: ESR-1539

JOHN C. DOEDEN, P.E.
FL LIC. NO. 45484

STATE OF FLORIDA PROFESSIONAL ENGINEER

1) NAIL YIELD MODE 0.072 NAILS

	SIDE PIECE		MAIN MEMBER		
LUMBER s.g. =	0.42		0.42	Kd=	2.20
Fe =	4260	Fe =	4260		
WIRE DIAMETER =	0.072	Fyb =	100000		
SIDE PLATE t =	1.500	FASTENER LENGTH p		2.5	
	Re = Fem / Fes =		1		
	Res = Fes / Fem =		1		

MODE IIIs Z = -2 ts Fes D/Kd (2Res + 1) + 2FesD/Kd x
[ts^2/(2Res+1)^2 + ts^2/(2Res+1) + 4M/Fes/D/(2Res=1)^.5

=====> 141.83

MODE IV Z = 4 Fem D/ Kd * SQRT(M / Fem D (1 + Re)) = 45.03
M = 4 in-lbs

THEN Z = 45.03 LBS.
Zbase = 45.03 LBS. where Cd = 1 OK

These prints comply with the Florida Manufactured Building Act and adopted Codes and adhere to the following criteria:

APPROVED BY
NTA INC.

Const. Type:	VB - unprotected
Occupancy:	R-3
Allowable No. of Floors:	One (1)
Wind Velocity:	126 MPH - Ultimate
Fire Rating of Ext. Walls:	0 hr
Plan No.:	MFT-2530-EZ-476-1
Allow. Floor Load:	40 PSF
Approval Date:	7/18/2012
Manufacturer:	Southern Energy Homes, Inc.

John C. Doeden
15133 County Road 22 , Goshen , IN 46528

JOHN C. DOEDEN , P.E.

DATE: 11/06/11 REV.

CALCULATION FOR

SUBJECT : STAPLE LATERAL RESISTANCE - 16 GA

REFERENCE: ESR-1539

11/14/11

JOHN C. DOEDEN, P.E.
FL LIC. NO. 45484

STATE OF FLORIDA PROFESSIONAL ENGINEER

1) NAIL YIELD MODE 0.0625 NAILS

	SIDE PIECE		MAIN MEMBER		
LUMBER s.g. =	0.42		0.42	Kd=	2.20
Fe =	4260	Fe =	4260		
WIRE DIAMETER =	0.0625	Fyb =	100000		
SIDE PLATE t =	0.375	FASTENER LENGTH p			1.5
SHEATHING	Re = Fem / Fes =		1		
	Res = Fes / Fem =		1		

MODE IIIs Z = -2 ts Fes D/Kd (2Res + 1) + 2FesD/Kd x
[ts^2/(2Res+1)^2 + ts^2/(2Res+1) + 4M/Fes/D/(2Res=1)^.5

=====> 38.43

MODE IV Z = 4 Fem D/ Kd * SQRT(M / Fem D (1 + Re)) = 39.80
M = 3.6 in-lbs

THEN Z = 38.43 LBS.
Zbase = 38.43 LBS.

where Cd = 1 OK

These prints comply with the Florida Manufactured Building Act and adopted Codes and adhere to the following criteria:

APPROVED BY NTA INC.

Const. Type:	VB - unprotected
Occupancy:	R-3
Allowable No. of Floors:	One (1)
Wind Velocity:	126 MPH - Ultimate
Fire Rating of Ext. Walls:	0 hr
Plan No.:	MFT-2530-EZ-476-1
Allow. Floor Load:	40 PSF
Approval Date:	7/18/2012
Manufacturer:	Southern Energy Homes, Inc.

K2 ENGINEERING, Inc
Structural Designers - Consulting Engineers
JOHN C. DOEDEN, P.E.
15133 County Road 22, Goshen, IN 46528

DATE 11/08/11 REV.

CALCULATION FOR **S.E Homes**

SUBJECT: # 7/16 x 1-1/2 x 16 Ga. Staple ☆
0.375 x LUMBER SIDE PLATE

REFERENCE: NDS-

JOHN C. DOEDEN, P.E.
FLA. LIC. NO. 45484
STATE OF FLORIDA
PROFESSIONAL ENGINEER

SCREW YIELD MODE FOR LOADS 90 DEGREES TO GRAIN. Angle to Grain is Not Applicable for 7/16 x 1-1/2 x 16 Ga. Staple

	SIDE PIECE		MAIN MEMBER		
LUMBER s.g. =	0.42		0.42	Kd=	2.20
Fe =	3350	Fe =	3350		
FASTENER DIA. =	0.0625	Fyb =	100000		
SIDE PLATE t =	0.375	FASTENER LENGTH p =	1.5		
	Re =	1			

MODE Is	Z=	D ts Fes / Rd =	35.69		Rd= Kd x Ktheta for D<.25
MODE Im	Z=	D tm Fem / Rd =	107.07		Kd = 2.2 Ktheta = 1.25
MODE II	Z=	k1 D ts Fes / Rd =	35.69	where k1= 1.00	Rt = tm/ts= 3
MODE IIIm	Z =	k2 D tm Fem / (1+2Re) Rd	37.30	where k2= 1.05	
MODE IIIs	Z =	k3 D ts Fem / (2+Re) Rd =	16.40	where k3= 1.38	
MODE IV	Z =	D^2/Rd * SQRT(2 Fem Fyb / 3 (1 + Re)) =		18.76	

THEN Z = 16.40 LBS. x 2 Legs = 32.80 lbs < 38.4 ∴ USE 32.8 #

& p min = 6 D = 0.375 OK

These prints comply with the Florida Manufactured Building Act and adopted Codes and adhere to the following criteria:

APPROVED BY
NTA INC.

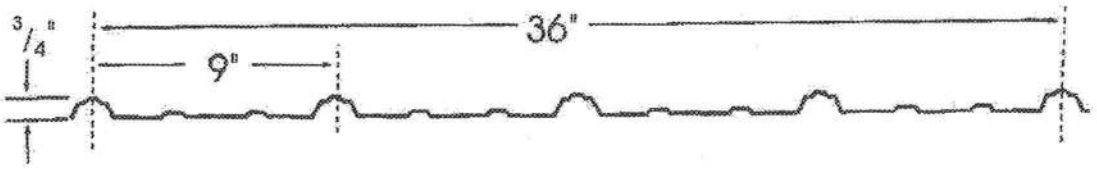
Const. Type:	VB - unprotected
Occupancy:	R-3
Allowable No. of Floors:	One (1)
Wind Velocity:	126 MPH - Ultimate
Fire Rating of Ext. Walls:	0 hr
Plan No.:	MFT-2530-EZ-476-1
Allow. Floor Load:	40 PSF
Approval Date:	7/18/2012
Manufacturer:	Southern Energy Homes, Inc.

3/4

POWER-RIB FEATURES:

Ref. Appendix

- **Durable baked on finish.**
- **Available in 29 gauge (inquire for other gauges).**
- **Unique double trapezoidal 9" on center major rib with two intermediate ribs gives you maximum load carrying capacity with minimum deflection for exceptional strength and rigidity.**
- **A wide variety of beautiful colors.**
- **A complete line of trim and accessories.**
- **The 3/4" Power-Rib™ and specially designed Anti-Leak Lap Joint keeps your valuable assets safe and dry.**
- **Guaranteed not to crack, peel, chip, check or fade for a full twenty years* making the Power-Rib™ Panel your best choice.**
  **See terms of Warranty for specific information.*



SECTION PROPERTIES										
GAUGE	NOM. THICK (in.)	WT. (PSF)	Fy (KSI)	NET COVERAGE (in.)	PANEL TOP IN COMPRESSION			PANEL BOTTOM IN COMPRESSION		
					Ix (in.4/ft.)	Sx (in.3/ft.)	Ma in-kips/ft.	Ix (in.4/ft.)	Sx (in.3/ft.)	Ma in-kips/ft.
29	.015	0.78	80.0	36.0	.0143	.0241	0.87	.0071	.0159	0.57

ALLOWABLE UNIFORM LOADS IN POUNDS PER SQUARE FOOT																	
GAUGE	WIND LOAD (STRESS)						LIVE LOAD (STRESS)						LIVE LOAD (DEFLECTION)					
29	2'	2.5'	3'	3.5'	4'	4.5'	2'	2.5'	3'	3.5'	4'	4.5'	2'	2.5'	3'	3.5'	4'	4.5'
	148	94	65	48	37	29	111	72	50	37	28	22	111	72	50	37	28	22

NOTES:

1. Section properties and allowable stresses are calculated in accordance with the 1986 AISI specifications for light gauge structural members.
2. Steel minimum yield strength is 80 KSI conforming to ASTM A635-95 (galvanized)
3. Values shown as allowable loads are based on panel covering three equal spans. Multiply by 0.8 for two span allowable loads.
4. Allowable loads for wind have been increased by 33%. Panel weight has not been deducted. Minimum bearing length must be checked. Not so
5. For agricultural structures, the UBC and SBCCI building codes require a minimum of 10 PSF roof live loads.
6. Deflection loads are limited by a maximum deflection ration of L/180 of span.

Storage and Handling:
See Application Guide for specific Storage, Handling and Safety Precautions.

Distributed by:

These prints comply with the Florida Manufactured Building Act and adopted Codes and adhere to the following criteria:

APPROVED BY
NTA INC.

Const. Type:	VB - unprotected
Occupancy:	R-3
Allowable No. of Floors:	One (1)
Wind Velocity:	126 MPH - Ultimate
Fire Rating of Ext. Walls:	0 hr
Plan No.:	MFT-2530-EZ-476-1
Allow. Floor Load:	40 PSF
Approval Date:	7/18/2012
Manufacturer:	Southern Energy Homes, Inc.

JOHN C. DOEDEN, P.E.
15133 County Road 22, Goshen, IN 46528

DATE: 11/14/2011 REV.

CALCULATION FOR S.E. HOMES

SUBJECT: EYEBROW W/EXPOSED RAFTERS

REFERENCE: IRC & ASCE-7

JOHN C. DOEDEN, P.E.
FL LIC. NO. 45484

STATE OF FLORIDA PROFESSIONAL ENGINEER

ANY EYEBROW DESIGN

OPT. METAL ROOF APPLICATION

UPLIFT = 79.4 PSF

#10 x 4½" SCREWS INTO WALL STUDS @ 16" o/c (3 SCWS)

4 PSF D.L. RESISTING

#1

5"

3/8 x 5" LAGS COUNTERSUNK

METAL ROOF W/ RIBS (29GA) 9" o/c & APPROVED FOR INSTALLATION DIRECTLY TO FRAMING @ FASTENER SPACING = DIST. BETWEEN RAILS

2x6 No. 3 SPF BACK RAIL

1) NET UPLIFT @ RAFTER

EAVE = $\frac{(79.4)(1.33)}{1.2}$ = 8.82 #/in

2x4 No. 3 S-P-F RAFTERS @ 16" o/c

24" MAX

GRAVITY $\frac{(20+8)(1.33)}{12}$ = 3.11 #/in

2) SHEET FASTENING @ RAILS

LOAD = $\frac{5}{24}(79.4)$ = 3.31 S

GRAVITY = (20+6) = 26 PSF

W/D W/ #9 x 1" SCREWS PER INSTRUCTIONS

W/D = 89#(1.6) = 142#

PULL OVER W/ ¼" DIA. WASHER HEAD = 0.4(80 KSI)(¼ x π)(0.0135) = 339# > 142 (OK)

LOAD @ SCREWS (EA. RIB) 9" o/c = 3.31(0.75) S = 142# ⇒ S = 57"

∴ SCREWS @ 9" o/c (OK) INTO RAILS ONLY

These prints comply with the Florida Manufactured Building Act and adopted Codes and ~~adhere to the following criteria:~~

APPROVED BY

NTA INC.

Const. Type:	VB - unprotected
Occupancy:	R-3
Allowable No. of Floors:	One (1)
Wind Velocity:	126 MPH - Ultimate
Fire Rating of Ext. Walls:	0 hr
Plan No.:	MFT-2530-EZ-476-1
Allow. Floor Load:	40 PSF
Approval Date:	7/18/2012
Manufacturer:	Southern Energy Homes, Inc.

JOHN C. DOEDEN , P.E.
15133 County Road 22, Goshen, IN 46528

DATE: 11/14/11 REV

CALCULATION FOR

SUBJECT :

REFERENCE:

JOHN C. DOEDEN, P.E.
FL LIC. NO. 45484

STATE OF FLORIDA PROFESSIONAL ENGINEER

3) RIBBED ROOFING CAPACITY BASED ON POWER-RIB FEATURES PAGE

FOR 2' SPACING OF PURLINS / FASTENERS

MAX. LOAD = 111 PSF BASED ON DEFL. @ 3-SPAN CONDITION

SINCE EYEBROW IS SINGLE SPAN

$\Delta = \frac{5 w_1 l_1^4}{384 EI}$ VS 3-SPAN $\Delta = \frac{0.0069 w_2 l_2^4}{EI}$

EI & l CONSTANT $\therefore$ $w_1 = 0.53 w_2$

ALLOW. UPLIFT = 0.53(111) = 58.8 PSF < 79.4 NG

FIND l_2 FOR 79.4 PSF

LOAD BASED ON $l/180$

then $w_1 l_1^3 = 0.53 w_2 l_2^3$

MAX $l_1 = \sqrt[3]{\frac{0.53(111)}{79.4}(24)^3} = 21.7''$ say 21.5"

4) FASTENER RESISTANCE FOR LATERAL LOADS $\Longrightarrow$ GRAVITY = LOAD ON BACK RAIL.

$= 3.31(21.5)^2/2 = 219\#/1.33 = 164\#/ft$

L.R. $= 53.9(1.15) = 62\#$ $\Longrightarrow$ $/0.75^1 = 82.6\#/ft < 164$

$\therefore$ install 1 screw ea. side of R:6

$= 165\#/ft > 164$ OK

These prints comply with the Florida Manufactured Building Act and adopted Codes and adhere to the following criteria:	Const. Type:	VB - unprotected
	Occupancy:	R-3
	Allowable No. of Floors:	One (1)
	Wind Velocity:	126 MPH - Ultimate
APPROVED BY NTA INC.	Fire Rating of Ext. Walls:	0 hr
	Plan No.:	MFT-2530-EZ-476-1
	Allow. Floor Load:	40 PSF
	Approval Date:	7/18/2012
	Manufacturer:	Southern Energy Homes, Inc.

K2 ENGINEERING, Inc

Structural Designers - Consulting Engineers

JOHN C. DOEDEN, P.E.

15133 County Road 22, Goshen, IN 46528

DATE: 04/22/2011 REV

CALCULATION FOR S.E. Homes

SUBJECT: # 9 SCREW - CUT THREAD OR ROLLED THREAD
29 GA. METAL (33 ksi STEEL) SIDE PLATE

REFERENCE: NDS-

JOHN C. DOEDEN, P.E. FL LIC. NO. 45484 STATE OF FLORIDA PROFESSIONAL ENGINEER

SCREW YIELD MODE

	SIDE PIECE		MAIN MEMBER		
LUMBER s.g. =	0.42		0.42	Kd=	2.20
Fe =	61850	Fe =	3350		
FASTENER DIA. =	0.142	Fyb =	100000		
SIDE PLATE t =	0.0135	FASTENER LENGTH p =	3		
	Re =	0.054163298			

MODE Is	Z=	D ts Fes / Rd =	53.89		Rd= Kd for D<.25	
MODE Im	Z=	D tm Fem / Rd =	645.76		Kd = 2.2	
MODE II	Z=	k1 D ts Fes / Rd =	264.64	where k1=	4.91	Rt = tm/ts= 221.22222
MODE IIIm	Z =	k2 D tm Fem / (1+2Re) Rd	273.18	where k2=	0.47	
MODE IIIs	Z =	k3 D ts Fem / (2+Re) Rd =	94.56	where k3=	66.54	
MODE IV	Z =	D^2/Kd * SQRT(2 Fem Fyb / 3 (1 + Re)) =			133.41	

THEN Z = 53.89 LBS. & p min = 10 D = 1.42 OK

ADJ. Factor= 1

L.R.= 53.89 LBS.

These prints comply with the Florida Manufactured Building Act and adopted Codes and adhere to the following criteria:

APPROVED BY NTA INC.

Const. Type:	VB - unprotected
Occupancy:	R-3
Allowable No. of Floors:	One (1)
Wind Velocity:	126 MPH - Ultimate
Fire Rating of Ext. Walls:	0 hr
Plan No.:	MFT-2530-EZ-476-1
Allow. Floor Load:	40 PSF
Approval Date:	7/18/2012
Manufacturer:	Southern Energy Homes, Inc.

JOHN C. DOEDEN , P.E.
15133 County Road 22, Goshen, IN 46528

DATE: 11/14/2011 REV. ______

CALCULATION FOR: S.E. HOMES

SUBJECT: EYEBROW W/EXPOSED RAFTERS

REFERENCE: ASCE 7 . FBC-R

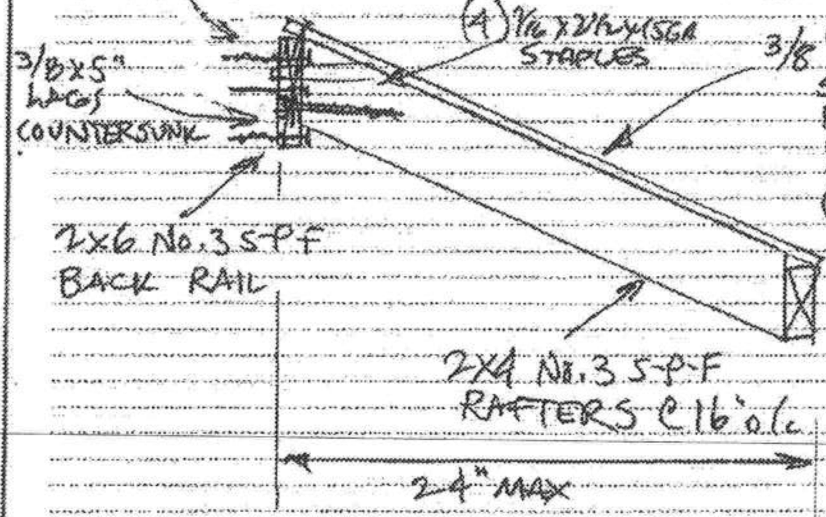
JOHN C. DOEDEN, P.E.
FL LIC. NO. 25488

130 mph EXP C — TABLE Fig 6-3

MRH = 30' — NOT IN CORNER ZONE — UPLIFT = 56.7(1.4) = 79.4 PSF

4 PSF D.L. RESISTING → ASSUME 0

#10 x 4½" SCREWS INTO WALL STUDS @ 16" o.c. (3 ROWS)



3/8" MIN. RATED SHEATHING FASTENED TO BACK RAIL w/ 7/16 x 1½ x 16GA. STAPLES @ 2½" o.c. (PER SCHEDULE ELSEWHERE)

1) NET UPLIFT @ RAFTER

$w_{22} = \frac{(79.4)(1.33)}{12} = 8.82\ \#/in$

GRAVITY $\frac{(20+8)(1.33)}{12} = 3.11\ \#/in$

2) MOMENT IN FRAME

$M = \frac{wa^2}{2} = \frac{8.82(24)^2}{2} = 2540\ in\text{-}\#$

2x4 $F_b S_x = 500(1.5)(1.6)(1.15)(3.06) = 4223\ in\text{-}\# > 2540$ OK

- SHEAR $= wa = 8.82(24) = 212\ \#$

$f_v = \frac{212}{3.5} = 60.5\ psi < 135(1.6)$ OK

- DEFL $\Delta = \frac{wa^4}{8EI} = \frac{8.82(24)^4}{8(1.2\times10^6)(5.36)} = 0.057" \Rightarrow 2a/844$ OK

These prints comply with the Florida Manufactured Building Act and adopted Codes and adhere to the following criteria:

Const. Type:	VB - unprotected
Occupancy:	R-3
Allowable No. of Floors:	One (1)
Wind Velocity:	126 MPH - Ultimate
Fire Rating of Ext. Walls:	0 hr
Plan No.:	MFT-2530-EZ-476-1
Allow. Floor Load:	40 PSF
Approval Date:	7/18/2012
Manufacturer:	Southern Energy Homes, Inc.

APPROVED BY NTA INC.

JOHN C. DOEDEN, P.E.
15133 County Road 22, Goshen, IN 46528

DATE 11/14/2011 REV

CALCULATION FOR S.E. Homes

SUBJECT: EYEBROW

REFERENCE:

JOHN C. DOEDEN LICENSE No 45484 STATE OF FLORIDA PROFESSIONAL ENGINEER

11/14/11
JOHN C. DOEDEN, P.E.
FLLIC. NO. 45484

3) CONNECTIONS

BACK RAIL TO RAFTERS w/ 7/16 X 1½ x 15GA. STAPLES

- SHEAR = 227#

L.R. = 45.0 (⅔) (1.6)
= 48 #

N.R. = 212 / 48 = 4.4
say 5

- MOMENT UPLIFT ⇒ 3½" MIN. R

R = 254.0 in# / 3.5 = 726#

3/8 x 5" LAG (E-E = 2 25/32") W/D = 2.78 (235) (1.6) (0.25)
= 784 # (M) E.G.

GRAVITY → R = 3.11 (24)² / 2 / 3.5 = 256#

SHEATHING FASTENING w/ 7/16 x 16 GA. STAPLES

L.R. = 32.8 (1.15) = 37.7#

SPACING = 37.7 (12) / 256 / 1.33 = 2.36 ⇒ 2¼" o.c. MAX @ BACK RAIL

- BACK RAIL TO WALL STUDS w/ #10 x 5" SCREWS ⇒ W/D = 45 x 3.33 x 1.6
10 = 3.33" = 507 #

MIN. DISTANCE BETWEEN ROWS = 2"

These prints comply with the Florida Manufactured Building Act and adopted Codes and adhere to the following criteria:

APPROVED BY NTA INC.

Const.-Type:	VB - unprotected
Occupancy:	R-3
Allowable No. of Floors:	One (1)
Wind Velocity:	126 MPH - Ultimate
Fire Rating of Ext. Walls:	0 hr
Plan No.:	MFT-2530-EZ-476-1
Allow. Floor Load:	40 PSF
Approval Date:	7/18/2012
Manufacturer:	Southern Energy Homes, Inc.

JOHN C. DOEDEN, P.E.
15133 County Road 22, Goshen, IN 46528

DATE: 11/14/11 REV

CALCULATION FOR

SUBJECT :

REFERENCE:

JOHN C. DOEDEN LICENSE No 45484 STATE OF FLORIDA PROFESSIONAL ENGINEER

11/14/11
JOHN C. DOEDEN, P.E.
FL LIC. NO. 45484

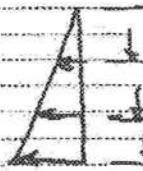
VB - unprotected | R-3 | One (1) | 126 MPH - Ultimate

0 hr | MFS-2530-EZ-476-1 | 40 PSF | 7/19/2012 | Southern Energy Homes, Inc.

Const. Type: | Occupancy: | Allowable No. of Floors: | Wind Velocity: | Fire Rating of Ext. Walls: | Plan No: | Allow. Floor Load: | Approval Date: | Manufacturer:

These prints comply with the Florida Manufactured Building Act and adopted Codes and acheare to the following criteria:

APPROVED BY NTA INC.



$M_R = 507\left(\frac{4.75^2 + 2.75^2 + 0.75^2}{4.75}\right) = 3275 \text{ in-}\# > 2540$ (6.46) OK

MIN. $p = \frac{2540}{(95 \times 1.6)(6.46)} = 2.6"$

∴ #10 x 4½" SCREW @ 3" SHEAR > 227#

L.R. = 99(1.6) = 158# 1.93 ROWS
3 ROWS OK.

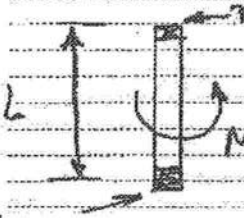
LAG SCREW WASHER FOR 726# LOAD

$A_{REQ'D} = \frac{726}{425 \text{ psi}} = 1.71 \text{ in}^2$

MIN. DIA. $= \sqrt{1.71(4)/\pi + (3/8)^2} = 1.52$

Say 1½" DIA.

4) WALL FRAMING @ WINDOW OPENINGS W/EYEBROW ABOVE



WINDWARD (ONLY) CONDITION INDUCES UPLIFT & RESULTING MOMENT

OPNG STUDS & CRIPPLES

$M = 2540 \text{ in-}\# \rightarrow R_{END} = \frac{M}{L} = 192\#$

CRIPPLE $L_{MIN} = \frac{2540}{192} = 13"$

CRIPPLES FASTENED W/(4) 7/16 x 2½ x 15GA. STAPLES

L.R. = 4(48) = 192#

OPENING STUDS $R_{END} = \frac{2540}{84"} = 30\#$ AND ONE FASTENER @ TOP

ALT (3) 0.120 x 2½" NAILS (TOE) = (3)(62 x 5/6 x 1.6) = 247 > 192 OK