

## Columbia County Remodel Permit Application

NEW CONSTRUCTION

**For Office Use Only** Application # 1908-110 Date Received 8/29/19 By MG Permit # 38623  
Zoning Official UH Date 9-6-19 Flood Zone X Land Use Ag Zoning A-3  
FEMA Map # N/A Elevation N/A MFE        River N/A Plans Examiner J.C. Date 9-6-19  
Comments 1' above the road Site at 90' Road 85' F. 30' Sides 25' Rear 25'  
☐ NOC ☒ Deed or PA ☐ Dev Permit #        ☐ In Floodway ☒ Letter of Auth. from Contractor on file  
☐ F W Comp. letter ☐ Owner Builder Disclosure Statement ☐ Land Owner Affidavit ☐ Ellisville Water ☒ App Fee Paid  
☒ Site Plan ☐ Env. Health Approval        ☒ Sub VF Form

Fax 386-758-8920Applicant (Who will sign/pickup the permit) SUZANNE STEWARTPhone 386-752-8653Address 465 NW ORANGE STREET, LAKE CITY, FL 32055Owners Name REED and SUSAN KELLNERPhone 561-478-4500911 Address 1545 SW CENTERVILLE AVE., FT. WHITE, FL 32032Contractors Name BRYAN ZECHERPhone 386-752-8653Address 465 NW ORANGE STREET, LAKE CITY, FL 32055Contractor Email ZECHEROFFICE@GMAIL.COM

\*\*\*Include to get updates on this job.

Fee Simple Owner Name & Address       Bonding Co. Name & Address N/SAArchitect/Engineer Name & Address Mark DisosowayMortgage Lenders Name & Address NoneCircle the correct power company ☐ FL Power & Light ☒ Clay Elec. ☐ Suwannee Valley Elec. ☐ Duke EnergyProperty ID Number 16-6S-03832-109Estimated Construction Cost \$128,500.00Subdivision Name Ichetucknee Pines :Lot 1,2,3 Block C Unit        Phase       Driving Directions from a Major Road FOLLOW THESE DIRECTIONS- the address above will take you to the wrong street—from Lake City US 90head south on Main Blvd/41 South and merge to the right on SR 47, go 16 miles turn right on Elim Church  
go .7 miles, turn right on SW Henderson Ter (Spring Run Estates sign), go about 1/2 mile turn left on SWMontague Lane, home is on left before Centerville Ave.Construction of 2 additions to existing home        Commercial OR X ResidentialType of Structure (House; Mobile Home; Garage; Exxon) Existing mobile home, new will be site prepUse/Occupancy of the building now single family Addition to M.H.Is this changing       If Yes, Explain, Proposed Use/Occupancy       Is the building Fire Sprinkled? no If Yes, blueprints Included        Or Explain       Entrance Changes (Ingress/Egress)        If Yes, Explain       Zoning Applications applied for (Site & Development Plan, Special Exception, etc.)       Stu sent email 9.18.19

**Columbia County Building Permit Application**

**CODE: Florida Building Code 2017 6th Edition and the 2014 National Electrical Code.**

Application is hereby made to obtain a permit to do work and installations as indicated. I certify that no work or installation has commenced prior to the issuance of a permit and that all work be performed to meet the standards of all laws regulating construction in this jurisdiction.

**TIME LIMITATIONS OF APPLICATION:** An application for a permit for any proposed work shall be deemed to have been abandoned 180 days after the date of filing, unless pursued in good faith or a permit has been issued.

**TIME LIMITATIONS OF PERMITS:** Every permit issued shall become invalid unless the work authorized by such permit is commenced within 180 days after its issuance, or if the work authorized by such permit is suspended or abandoned for a period of 180 days after the time work is commenced. A valid permit receives an approved inspection every 180 days. Work shall be considered not suspended, abandoned or invalid when the permit has received an approved inspection within 180 days of the previous approved inspection.

**FLORIDA'S CONSTRUCTION LIEN LAW: Protect Yourself and Your Investment:** According to Florida Law, those who work on your property or provide materials, and are not paid-in-full, have a right to enforce their claim for payment against your property. This claim is known as a construction lien. If your contractor fails to pay subcontractors or material suppliers or neglects to make other legally required payments, the people who are owed money may look to your property for payment, even if you have paid your contractor in full. This means if a lien is filed against your property, it could be sold against your will to pay for labor, materials or other services which your contractor may have failed to pay.

**NOTICE OF RESPONSIBILITY TO CONTRACTOR AND AGENT:** **YOU ARE HEREBY NOTIFIED** as the recipient of a building permit from Columbia County, Florida, you will be held responsible to the County for any damage to sidewalks and/or road curbs and gutters, concrete features and structures, together with damage to drainage facilities, removal of sod, major changes to lot grades that result in ponding of water, or other damage to roadway and other public infrastructure facilities caused by you or your contractor, subcontractors, agents or representatives in the construction and/or improvement of the building and lot for which this permit is issued. No certificate of occupancy will be issued until all corrective work to these public infrastructures and facilities has been corrected.

**WARNING TO OWNER:** YOUR FAILURE TO RECORD A NOTICE OF COMMENCEMENT MAY RESULT IN YOU PAYING TWICE FOR IMPROVEMENTS TO YOUR PROPERTY. A NOTICE OF COMMENCEMENT MUST BE RECORDED AND POSTED ON THE JOB SITE BEFORE THE FIRST INSPECTION. IF YOU INTEND TO OBTAIN FINANCING, CONSULT WITH YOUR LENDER OR ATTORNEY BEFORE RECORDING YOUR NOTICE OF COMMENCEMENT.

**OWNERS CERTIFICATION:** I CERTIFY THAT ALL THE FOREGOING INFORMATION IS ACCURATE AND THAT ALL WORK WILL BE DONE IN COMPLIANCE WITH ALL APPLICABLE LAWS REGULATING CONSTRUCTION AND ZONING.

**NOTICE TO OWNER:** There are some properties that may have deed restrictions recorded upon them. These restrictions may limit or prohibit the work applied for in your building permit. You must verify if your property is encumbered by any restrictions or face possible litigation and or fines.

REED KELLNER  
Print Owners Name

  
Owners Signature

**\*\*Property owners must sign here  
before any permit will be issued.**

**\*\*If this is an Owner Builder Permit Application then, ONLY the owner can sign the building permit when it is issued.**

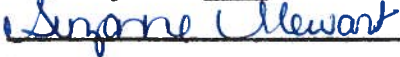
**CONTRACTORS AFFIDAVIT:** By my signature I understand and agree that I have informed and provided this written statement to the owner of all the above written responsibilities in Columbia County for obtaining this Building Permit including all application and permit time limitations.

  
Contractor's Signature

Contractor's License Number CBC 054575  
Columbia County  
Competency Card Number 853 ✓

Affirmed under penalty of perjury to by the Contractor and subscribed before me this 27th day of August 2019.

Personally known ☒ or Produced Identification \_\_\_\_\_

  
State of Florida Notary Signature (For the Contractor)

SEAL: \*



SUZANNE STEWART

MY COMMISSION # FF 938523

EXPIRES: November 16, 2019

Bonded Thru Budget Notary Services

# SUBCONTRACTOR VERIFICATION

APPLICATION/PERMIT # 1908-110

JOB NAME Kellner

**THIS FORM MUST BE SUBMITTED BEFORE A PERMIT WILL BE ISSUED**

Columbia County issues combination permits. One permit will cover all trades doing work at the permitted site. It is **REQUIRED** that we have records of the subcontractors who actually did the trade specific work under the general contractors permit.

**NOTE:** It shall be the responsibility of the general contractor to make sure that all of the subcontractors are licensed with the Columbia County Building Department.

Use website to confirm licenses: <http://www.columbiacountyfla.com/PermitSearch/ContractorSearch.aspx>

**NOTE:** If this should change prior to completion of the project, it is your responsibility to have a corrected form submitted to our office, before that work has begun.

Violations will result in stop work orders and/or fines.

<b>ELECTRICAL</b> <input checked="" type="checkbox"/>	Print Name <u>Marc Matthews</u> Signature <u>[Signature]</u>	Need <input type="checkbox"/> Lic <input type="checkbox"/> Lab <input type="checkbox"/> w/c <input type="checkbox"/> EX <input type="checkbox"/> DE
CC# <u>0076</u>	Company Name: <u>Matthews Electric</u> License #: <u>EC13005459</u> Phone #: <u>386-344-2029</u>	
<b>MECHANICAL</b> <input checked="" type="checkbox"/>	Print Name <u>Anthony Franks</u> Signature <u>[Signature]</u>	Need <input type="checkbox"/> Lic <input type="checkbox"/> Lab <input type="checkbox"/> w/c <input type="checkbox"/> EX <input type="checkbox"/> DE
VC <u>2024</u>	Company Name: <u>Franks &amp; Lane Heating and Air</u> License #: <u>CAC1818631</u> Phone #: <u>386-466-7514</u>	
<b>PLUMBING/GAS</b> <input checked="" type="checkbox"/>	Print Name <u>Cody Bors</u> Signature <u>[Signature]</u>	Need <input type="checkbox"/> Lic <input type="checkbox"/> Lab <input type="checkbox"/> w/c <input type="checkbox"/> EX <input type="checkbox"/> DE
CC# <u>000715</u>	Company Name: <u>Bors Plumbing</u> License #: <u>CFC1427145</u> Phone #: <u>386-623-0509</u>	
<b>ROOFING</b> <input checked="" type="checkbox"/>	Print Name <u>Robert Ogles Jr</u> Signature <u>[Signature]</u>	Need <input type="checkbox"/> Lic <input type="checkbox"/> Lab <input type="checkbox"/> w/c <input type="checkbox"/> EX <input type="checkbox"/> DE
<u>019</u> CC# <u>132867</u>	Company Name: <u>Ogles Roofing &amp; Construction</u> License #: <u>CCC 9328699</u> Phone #: <u>386-364-4838</u>	
<b>SHEET METAL</b> <input type="checkbox"/>	Print Name _____ Signature _____	Need <input type="checkbox"/> Lic <input type="checkbox"/> Lab <input type="checkbox"/> w/c <input type="checkbox"/> EX <input type="checkbox"/> DE
CC# _____	Company Name: _____ License #: _____ Phone #: _____	
<b>FIRE SYSTEM/SPRINKLER</b> <input type="checkbox"/>	Print Name _____ Signature _____	Need <input type="checkbox"/> Lic <input type="checkbox"/> Lab <input type="checkbox"/> w/c <input type="checkbox"/> EX <input type="checkbox"/> DE
CC# _____	Company Name: _____ License #: _____ Phone #: _____	
<b>SOLAR</b> <input type="checkbox"/>	Print Name _____ Signature _____	Need <input type="checkbox"/> Lic <input type="checkbox"/> Lab <input type="checkbox"/> w/c <input type="checkbox"/> EX <input type="checkbox"/> DE
CC# _____	Company Name: _____ License #: _____ Phone #: _____	
<b>STATE SPECIALTY</b> <input type="checkbox"/>	Print Name _____ Signature _____	Need <input type="checkbox"/> Lic <input type="checkbox"/> Lab <input type="checkbox"/> w/c <input type="checkbox"/> EX <input type="checkbox"/> DE
CC# _____	Company Name: _____ License #: _____ Phone #: _____	



## Legend

2018Aerials



SectionTownshipAndRange

### Roads

Roads

others

Dirt

Interstate

Main

Other

Paved

Private

Parcels

### 2018 Flood Zones

0.2 PCT ANNUAL CHANCE

A

AE

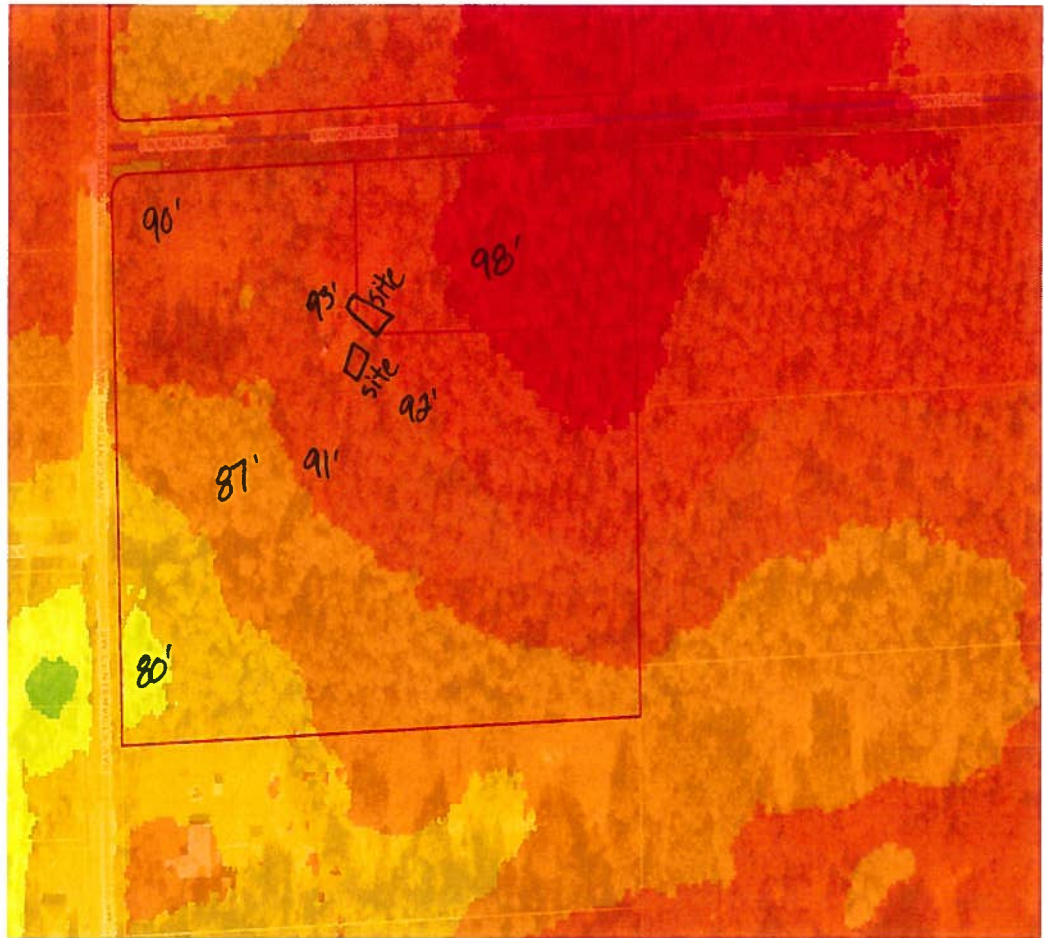
AH

### LidarElevations



# Columbia County, FLA - Building & Zoning Property Map

Printed: Tue Sep 03 2019 12:02:08 GMT-0400 (Eastern Daylight Time)



## Parcel Information

Parcel No: 16-6S-16-03832-109

Owner: KELLNER REED W & SUSAN J

Subdivision:

Lot:

Acres: 17.3354816

Deed Acres: 17.37 Ac

District: District 2 Rocky Ford

Future Land Uses: Agriculture - 3

Flood Zones:

Official Zoning Atlas: A-3

All data, information, and maps are provided "as is" without warranty or any representation of accuracy, timeliness of completeness. Columbia County, FL makes no warranties, express or implied, as to the use of the information obtained here. There are no implied warranties of merchantability or fitness for a particular purpose. The requester acknowledges and accepts all limitations, including the fact that the data, information, and maps are dynamic and in a constant state of maintenance, and update.

# Columbia County Property Appraiser

Jeff Hampton

## 2019 Preliminary Certified Values

updated: 8/14/2019

Parcel: << 16-6S-16-03832-109 >>

Aerial Viewer Pictometry Google Maps

### Owner & Property Info

Result: 1 of 1

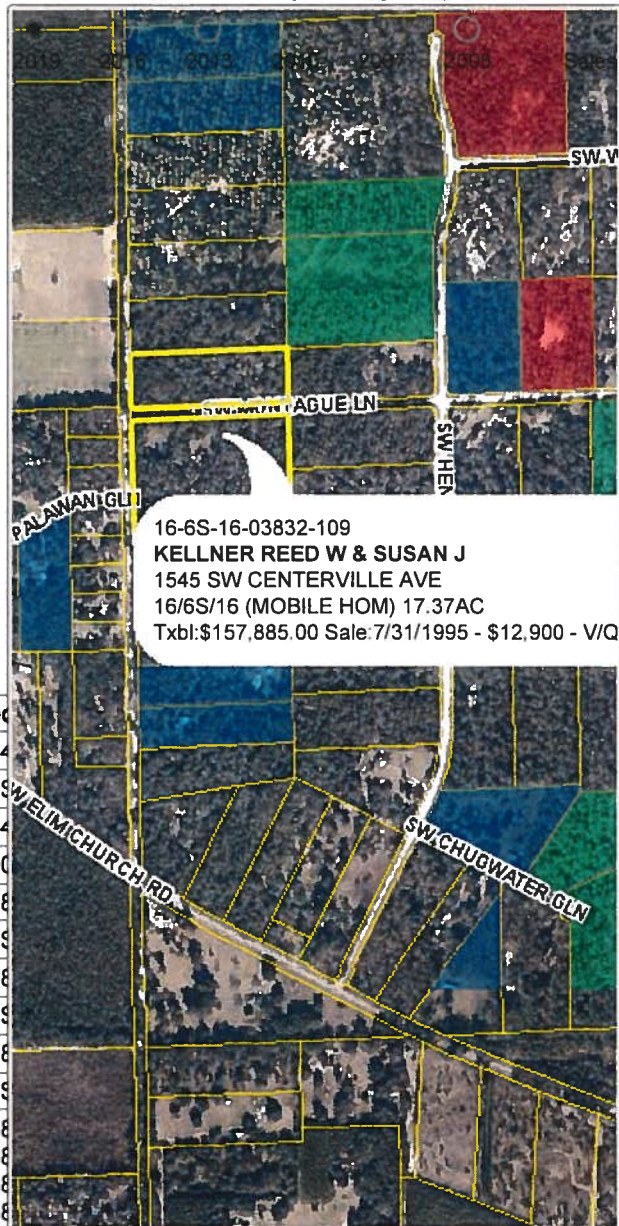
Owner	KELLNER REED W & SUSAN J 1202 BARNSTABLE CR WELLINGTON, FL 33414		
Site	1545 CENTERVILLE AVE, FORT WHITE		
Description*	LOTS 1,2, & 3 BLK C ICHETUCKNEE PINES S/D, & ALSO COMM AT SW COR OF SW1/4, RUN E 25 FT TO E R/W OF LAZY OAK RD, RUN SOUTH ALONG R/W 1701.02 FT, FOR POB, CONT S 258.06 FT, SE ALONG ARC OF CURVE 39.73 FT, E 795.34 FT N 283.70 FT, W 820.23 FT, TO POB. (AKA LOT ...more>>>		
Area	17.37 AC	S/T/R	16-6S-16
Use Code**	MOBILE HOM (000200)	Tax District	3

\*The Description above is not to be used as the Legal Description for this parcel in any legal transaction.

\*\*The Use Code is a FL Dept. of Revenue (DOR) code and is not maintained by the Property Appraiser's office. Please contact your city or county Planning & Zoning office for specific zoning information.

### Property & Assessment Values

2018 Certified Values		2019 Preliminary Certified	
Mkt Land (2)	\$80,840	Mkt Land (2)	\$83,340
Ag Land (0)	\$0	Ag Land (0)	\$0
Building (1)	\$47,601	Building (1)	\$49,545
XFOB (1)	\$25,000	XFOB (1)	\$25,000
Just	\$153,441	Just	\$157,885
Class	\$0	Class	\$0
Appraised	\$153,441	Appraised	\$157,885
SOH Cap [?]	\$0	SOH Cap [?]	\$0
Assessed	\$153,441	Assessed	\$157,885
Exempt	\$0	Exempt	\$0
Total Taxable	county:\$153,441 city:\$153,441 other:\$153,441 school:\$153,441	Total Taxable	county:\$157,885 city:\$157,885 other:\$157,885 school:\$157,885



16-6S-16-03832-109  
KELLNER REED W & SUSAN J  
1545 SW CENTERVILLE AVE  
16/6S/16 (MOBILE HOM) 17.37AC  
Txbt:\$157,885.00 Sale:7/31/1995 - \$12,900 - V/Q

### ▼ Sales History

Sale Date	Sale Price	Book/Page	Deed	V/I	Quality (Codes)	RCode
7/31/1995	\$12,900	809/0514	WD	V	Q	
9/19/1987	\$13,000	634/0148	WD	V	Q	

### ▼ Building Characteristics

Bldg Sketch	Bldg Item	Bldg Desc*	Year Blt	Base SF	Actual SF	Bldg Value
Sketch	1	MOBILE HME (000800)	2002	2338	2338	\$49,545

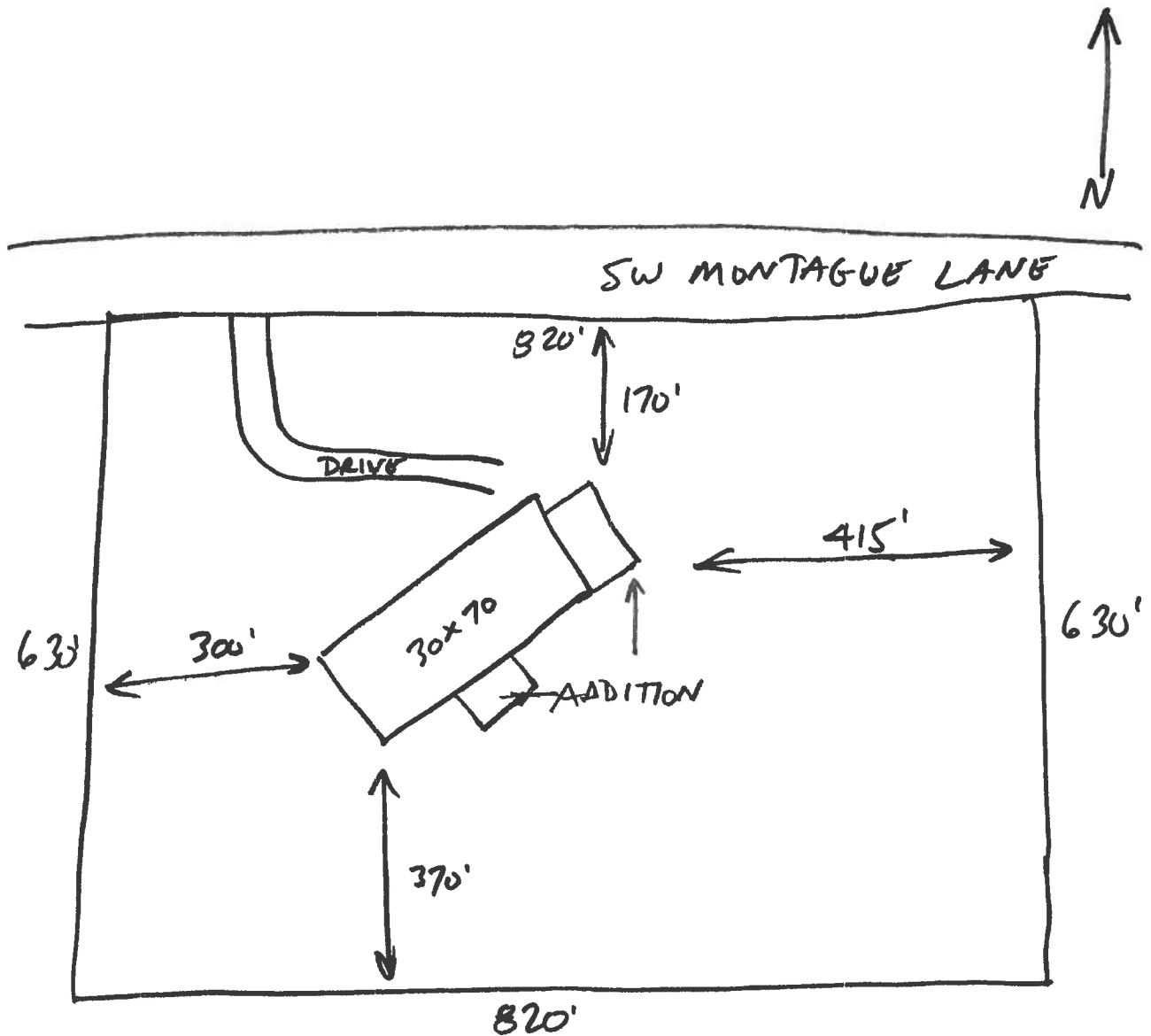
\*Bldg Desc determinations are used by the Property Appraisers office solely for the purpose of determining a property's Just Value for ad valorem tax purposes and should not be used for any other purpose.

### ▼ Extra Features & Out Buildings (Codes)

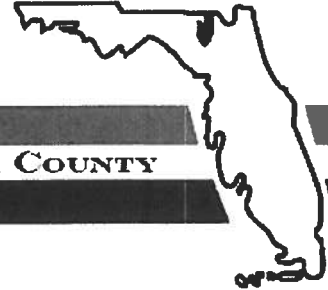
# PROPOSED SITE PLAN

KELLNER

PARCEL 16-65-16-03832-109



District No. 1 - Ronald Williams  
District No. 2 - Rocky Ford  
District No. 3 - Bucky Nash  
District No. 4 - Toby Witt  
District No. 5 - Tim Murphy



**BOARD OF COUNTY COMMISSIONERS • COLUMBIA COUNTY**

**Address Assignment and Maintenance Document**

To maintain the county wide Addressing Policy you must make application for a 9-1-1 Address at the time you apply for a building permit. The established standards for addressing and posting numbers to all principal buildings, dwellings, businesses and industries are contained in Columbia County Ordinance 2001-9. The addressing system is to enable Emergency Services Agencies to locate you in an emergency, and to assist the United States Postal Service and the public in the timely and efficient provision of services to residents and businesses of Columbia County

Date/Time Issued:	8/27/2019 8:36:15 PM
Address:	1545 SW CENTERVILLE Ave
City:	FORT WHITE
State:	FL
Zip Code	32038
Parcel ID	03832-109

REMARKS: Address Verification.

**NOTICE: THIS ADDRESS WAS ISSUED BASED ON LOCATION AND ACCESS INFORMATION RECEIVED FROM THE REQUESTER. SHOULD, AT A LATER DATE, THE LOCATION AND/OR ACCESS INFORMATION BE FOUND TO BE IN ERROR OR CHANGED, THIS ADDRESS IS SUBJECT TO CHANGE.**

Address Issued By: **Signed:/ Matt Crews**

Columbia County GIS/911 Addressing Coordinator

COLUMBIA COUNTY  
911 ADDRESSING / GIS DEPARTMENT

263 NW Lake City Ave., Lake City, FL 32055 Telephone: (386) 758-1125  
Email: [gis@columbiacountyfla.com](mailto:gis@columbiacountyfla.com)



10.50  
90.30

PREPARED BY AND RETURN TO:  
ALACHUA COUNTY ABSTRACT COMPANY  
215 SE 2ND AVENUE  
GAINESVILLE, FL 32601  
BY: Mary Bennett -jmb  
69,543-TT

\$ 90.30  
DOCUMENTARY STAMP  
INTANGIBLE TAX  
P. DEWITT CASON, CLERK OF  
COUNTY, COLUMBIA COUNTY  
BY: *Mary Bennett*

## WARRANTY DEED

THIS INDENTURE, Made this 31 day of July, 1995, Between

Wayne O. Grasse and April A. Grasse, husband and wife,  
whose post office address is: 106 Suffolk Court, Longwood, Florida 32779

of the County of Seminole, State of Florida, grantor", and

Reed W. Kellner and Susan J. Kellner, husband and wife,  
whose post office address is: 1202 Barnstable Circle, West Palm Beach, Florida 33414

of the County of Palm Beach, State of Florida, grantee",

WITNESSETH, That said grantor, for and in consideration of the sum of ---Ten and 00/100---(\$10.00) Dollars,  
and other good and valuable considerations to said grantor in hand paid by said grantee, the receipt whereof is hereby  
acknowledged, has granted, bargained and sold to the said grantee, and grantee's heirs and assigns forever, the following  
described land, situate, lying and being in Columbia County, Florida, to wit:

Lot One (1), Block C of Ichetucknee Pines, a subdivision  
according to plat thereof recorded in Plat Book 5, page 94-94A  
of the Public Records of Columbia County, Florida.

SUBJECT TO: taxes for 1995 and subsequent years, easements and restrictions  
of record and applicable zoning laws.

TAX PARCEL NUMBER: 16-6S-XXXXXXXXXX

GRANTEES' SSN respectively: XXXXXXXXXX 096-50-7122

Subject to a Reservation by Kate R. Henderson, et al. of an undivided interest in  
oil, gas and mineable minerals, including phosphates as contained in the Warranty Deed  
dated March 30, 1967 and recorded in Official Records Book 220, page 318 and re-recorded  
in Official Records Book 619, page 785, all of the Public Records of Columbia County,  
Florida.

EX 9809 PG0514

OFFICIAL RECORDS

95-10142

1995 AUG 11 10:23  
CLERK OF SUPERIOR  
COLUMBIA COUNTY, FLORIDA  
BY: *Mary Bennett*



BK 0809 PG0515

OFFICIAL RECORDS

and said grantor does hereby fully warrant the title to said land, and will defend the same against the lawful claims of all person whomsoever.

"Grantor" and "grantee" are used for singular or plural as context requires.

IN WITNESS WHEREOF, Grantor has hereunto set grantor's hand and seal the day and year first above written.

Signed, sealed, and delivered in our presence:

Evelyn Mathis  
Signature of witness #1  
Typed name: Evelyn Mathis  
Tracy Partin  
Signature of witness #2  
Typed name: Tracy Partin

Wayne O. Grasse (seal)  
Wayne O. Grasse  
April A. Grasse (seal)  
April A. Grasse

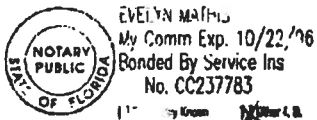
State of Florida

County of Seminole

The foregoing instrument was sworn to, subscribed and acknowledged before me this date of 31, July, 1995  
by Wayne O. Grasse and April A. Grasse, husband and wife who produced

as identification.

(affix notary seal)



Evelyn Mathis (seal)  
Notary Public  
Typed name: EVELYN MATHIS  
My commission number is: CC237783  
My commission expires: 10-22-96

38623

# NOTICE OF COMMENCEMENT

Tax Parcel Identification Number:

16-6S-03832-109

Clerk's Office Stamp

Inst: 201912021903 Date: 09/18/2019 Time: 12:12PM  
Page 1 of 1 B: 1394 P: 2384, P. DeWitt Cason, Clerk of Court  
Columbia, County, By: BD  
Deputy Clerk

THE UNDERSIGNED hereby gives notice that improvements will be made to certain real property, and in accordance with Section 713.13 of the Florida Statutes, the following information is provided in this NOTICE OF COMMENCEMENT.

- Description of property (legal description): LOTS 1, 2, & 3 BLK C ICHETUCKNEE PINE S/D  
a) Street (Job) Address: 1545 CENTERVILLE AVE, FT WHITE, FL 32038
- General description of improvements: 2 ADDITIONS / REMODEL OF EXISTING HOME
- Owner Information or Lessee Information if the Lessee contracted for the improvements:  
a) Name and address: Reed Kellner 1202 Barnstable Circle Wellington FL 33414  
b) Name and address of fee simple titleholder (if other than owner): NA  
c) Interest in property: \_\_\_\_\_
- Contractor Information  
a) Name and address: BRYAN ZECHER, 465NW ORANGE STREET, LAKE CITY, FL 32055  
b) Telephone No.: 386-752-8653
- Surety Information (if applicable, a copy of the payment bond is attached): NA  
a) Name and address: \_\_\_\_\_  
b) Amount of Bond: \_\_\_\_\_  
c) Telephone No.: \_\_\_\_\_
- Lender  
a) Name and address: NA  
b) Phone No.: \_\_\_\_\_
- Person within the State of Florida designated by Owner upon whom notices or other documents may be served as provided by Section 713.13(1)(a)7., Florida Statutes: NA  
a) Name and address: \_\_\_\_\_  
b) Telephone No.: \_\_\_\_\_
- In addition to himself or herself, Owner designates the following person to receive a copy of the Lienor's Notice as provided in Section 713.13(1)(b), Florida Statutes: NA OF \_\_\_\_\_  
a) Name: \_\_\_\_\_  
b) Telephone No.: \_\_\_\_\_
- Expiration date of Notice of Commencement (the expiration date will be 1 year from the date of recording unless a different date is specified): \_\_\_\_\_

**WARNING TO OWNER: ANY PAYMENTS MADE BY THE OWNER AFTER THE EXPIRATION OF THE NOTICE OF COMMENCEMENT ARE CONSIDERED IMPROPER PAYMENTS UNDER CHAPTER 713, PART I, SECTION 713.13, FLORIDA STATUTES, AND CAN RESULT IN YOUR PAYING TWICE FOR IMPROVEMENTS TO YOUR PROPERTY; A NOTICE OF COMMENCEMENT MUST BE RECORDED AND POSTED ON THE JOB SITE BEFORE THE FIRST INSPECTION. IF YOU INTEND TO OBTAIN FINANCING, CONSULT YOUR LENDER OR AN ATTORNEY BEFORE COMMENCING WORK OR RECORDING YOUR NOTICE OF COMMENCEMENT.**

STATE OF FLORIDA  
COUNTY OF COLUMBIA

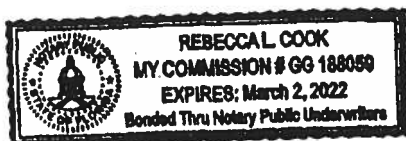
10. Reed W Kellner  
Signature of Owner or Lessee, or Owner's or Lessee's Authorized Office/Director/Partner/Manager

REED KELLNER / OWNER  
Printed Name and Signatory's Title/Office

The foregoing instrument was acknowledged before me, a Florida Notary, this 23<sup>rd</sup> day of August, 2019 by:  
Reed W. Kellner as \_\_\_\_\_ for \_\_\_\_\_  
(Name of Person) (Type of Authority) (name of party on behalf of whom instrument was executed)

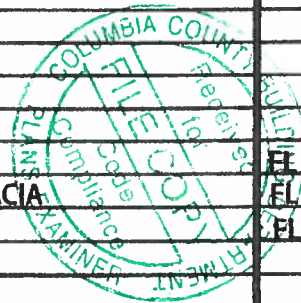
Personally Known X OR Produced Identification \_\_\_\_\_ Type \_\_\_\_\_

Notary Signature Reed Cook Notary Stamp or Seal:



As required by Florida Statute 553.842 and Florida Administrative Code 9B-72, please provide the information and approval numbers on the building components listed below if they will be utilized on the construction project for which you are applying for a building permit. We recommend you contact your local product supplier should you not know the product approval number for any of the applicable listed products. Statewide approved products are listed online @ [www.floridabuilding.org](http://www.floridabuilding.org)

Category/Subcategory	Manufacturer	Product Description	Approval Number(s)
<b>1. EXTERIOR DOORS</b>			
A. SWINGING	THERMO - TRU	EXTERIOR HINGED DOORS	FL 5891 - R3
B. SLIDING	PGT	SLIDING GLASS DOORS	FL 251 - R15
C. SECTIONAL/ROLL UP		GARAGE DOORS	FL 5678 - R2
D. OTHER			
<b>2. WINDOWS</b>			
A. SINGLE/DOUBLE HUNG	PGT	WINDOW	FL 239 - R19
B. HORIZONTAL SLIDER	PGT	WINDOW	FL 242 - R16
C. CASEMENT			
D. FIXED	PGT	WINDOW	FL 243 - R14
E. MULLION			
F. SKYLIGHTS			
G. OTHER			
<b>3. PANEL WALL</b>			
A. SIDING	HARDIE	PANEL WALL SIDING	FL 13192 - R5
B. SOFFITS	KAYCON	ALUMINUM SOFFIT / FACIA	FL 12198 - R1
C. STOREFRONTS	STO	STUCCO FINISH	FL 15026 - R1
D. GLASS BLOCK			
E. OTHER			
<b>4. ROOFING PRODUCTS</b>			
A. ASPHALT SHINGLES	GAF	ARCH SHINGLES 30YR	FL 10124 - R20
B. NON-STRUCTURAL METAL	GAF	TAR PAPER	FL 4911 - R3
C. ROOFING TILES	OMG	ROOFING NAILS	FL 699 - R3
D. SINGLE PLY ROOF			
E. OTHER			
<b>5. STRUCTURAL COMPONENTS</b>			
A. WOOD CONNECTORS	USPC	ANCHORS	FL 5631 - R1
B. WOOD ANCHORS	USPC	ANCHORS	FL 5631 - R1
C. TRUSS PLATES			
D. INSULATION FORMS			
E. LINTELS			
F. OTHERS			
<b>6. NEW EXTERIOR ENVELOPE PRODUCTS</b>			



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 on the jobsite: 1) copy of the product approval, 2) performance characteristics which the product was tested and certified to comply with, 3) copy of the applicable manufacturers installation requirements. Further, I understand these products may have to be removed if approval cannot be demonstrated during inspection.

Contractor OR Agent Signature

Date

NOTES:

## **RESIDENTIAL ENERGY CONSERVATION CODE DOCUMENTATION CHECKLIST**

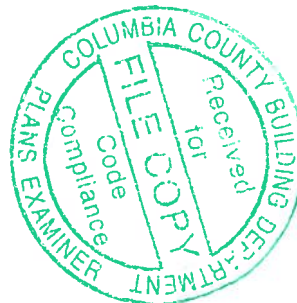
### **Florida Department of Business and Professional Regulation Simulated Performance Alternative (Performance) Method**

**Applications for compliance with the 2017 Florida Building Code, Energy Conservation via the residential Simulated Performance Method shall include:**

- ☐ This checklist
- ☐ A Form R405 report that documents that the Proposed Design complies with Section R405.3 of the Florida Energy Code. This form shall include a summary page indicating home address, e-ratio and the pass or fail status along with summary areas and types of components, whether the home was simulated as a worst-case orientation, name and version of the compliance software tool, name of individual completing the compliance report (one page) and an input summary checklist that can be used for field verification (usually four pages/may be greater).
- ☐ Energy Performance Level (EPL) Display Card (one page)
- ☐ HVAC system sizing and selection based on ACCA Manual S or per exceptions provided in Section R403.7
- ☐ Mandatory Requirements (five pages)

#### **Required prior to CO for the Performance Method:**

- ☐ Air Barrier and Insulation Inspection Component Criteria checklist (Table R402.4.1.1 - one page)
- ☐ A completed Envelope Leakage Test Report (usually one page)  
Testing is not required for additions in which the new construction is less than 85% of the thermal envelope. (R402.4.1.2, Florida Energy Code)
- ☐ If Form R405 duct leakage type indicates anything other than "default leakage", then a completed Form R405 Duct Leakage Test Report (usually one page)







## INPUT SUMMARY CHECKLIST REPORT

## PROJECT

Title:	190951 Kellner Res	Bedrooms:	0	Address Type:	Street Address
Building Type:	User	Conditioned Area:	747	Lot #	
Owner Name:		Total Stories:	1	Block/Subdivision:	
# of Units:	1	Worst Case:	No	PlatBook:	
Builder Name:		Rotate Angle:	0	Street:	1545 Centerville Ave
Permit Office:		Cross Ventilation:		County:	Columbia
Jurisdiction:		Whole House Fan:		City, State, Zip:	Fort White , FL ,
Family Type:	Single-family				
New/Existing:	Addition				
Comment:					

## CLIMATE

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

## BLOCKS

Number	Name	Area	Volume
1	Block1	747	5976

## SPACES

Number	Name	Area	Volume	Kitchen	Occupants	Bedrooms	Infil ID	Finished	Cooled	Heated
1	REAR	250	2000	No	1		1	Yes	Yes	Yes
2	LEFT	497	3976	No	0	0	1	Yes	Yes	Yes

## FLOORS

✓	#	Floor Type	Space	Perimeter	Perimeter R-Value	Area	Joist R-Value	Tile	Wood	Carpet
_____	1	Slab-On-Grade Edge Insulatio	REAR	65.7 ft	0	250 ft²	----	1	0	0
_____	2	Slab-On-Grade Edge Insulatio	LEFT	91 ft	0	497 ft²	----	0.73	0	0.27

## ROOF

✓	#	Type	Materials	Roof Area	Gable Area	Roof Color	Rad Barr	Solar Absor.	SA Tested	Emitt	Emitt Tested	Deck Insul.	Pitch (deg)
_____	1	Flat	Composition shingles	757 ft²	62 ft²	Dark	N	0.92	No	0.9	No	0	9.5

## ATTIC

✓	#	Type	Ventilation	Vent Ratio (1 in)	Area	RBS	IRCC
_____	1	Full attic	Vented	300	747 ft²	N	N

## INPUT SUMMARY CHECKLIST REPORT

## CEILING

✓	#	Ceiling Type	Space	R-Value	Ins Type	Area	Framing Frac	Truss Type
✓	1	Under Attic (Vented)	REAR	38	Blown	250 ft²	0.11	Wood
✓	2	Under Attic (Vented)	LEFT	38	Blown	497 ft²	0.11	Wood

## WALLS

✓	#	Omt	Adjacent To	Wall Type	Space	Cavity R-Value	Width Ft	In	Height Ft	In	Area	Sheathing R-Value	Framing Fraction	Solar Absor	Below Grade%
✓	1	W	Exterior	Frame - Wood	REAR	13	12	0	8		96.0 ft²		0.23	0.75	0
✓	2	N	Exterior	Frame - Wood	REAR	13	20	10	8		166.7 ft²		0.23	0.75	0
✓	3	E	Exterior	Frame - Wood	REAR	13	12		8		96.0 ft²		0.23	0.75	0
✓	4	N	Exterior	Frame - Wood	LEFT	13	19		8		152.0 ft²		0.23	0.75	0
✓	5	W	Exterior	Frame - Wood	LEFT	13	26	2	8		209.3 ft²		0.23	0.75	0
✓	6	S	Exterior	Frame - Wood	LEFT	13	19		8		152.0 ft²		0.23	0.75	0

## DOORS

✓	#	Omt	Door Type	Space	Storms	U-Value	Width Ft	In	Height Ft	In	Area
✓	1	N	Insulated	REAR	None	.4	1	6	6	8	10 ft²

## WINDOWS

Orientation shown is the entered, Proposed orientation.

✓	#	Omt	Wall ID	Frame	Panes	NFRC	U-Factor	SHGC	Imp	Area	Overhang Depth	Separation	Int Shade	Screening
✓	1	N	2	Metal	Low-E Double	Yes	0.3	0.2	N	2.0 ft²	0 ft 6 in	3 ft 0 in	None	None
✓	2	N	2	Metal	Low-E Double	Yes	0.3	0.2	N	10.0 ft²	0 ft 6 in	3 ft 0 in	None	None
✓	3	N	4	Metal	Low-E Double	Yes	0.3	0.2	N	4.0 ft²	0 ft 6 in	1 ft 0 in	None	None
✓	4	W	5	Metal	Low-E Double	Yes	0.3	0.2	N	4.0 ft²	0 ft 6 in	2 ft 0 in	None	None
✓	5	W	5	Metal	Low-E Double	Yes	0.3	0.2	N	6.0 ft²	0 ft 6 in	4 ft 0 in	None	None
✓	6	S	6	Metal	Low-E Double	Yes	0.3	0.2	N	9.0 ft²	0 ft 6 in	1 ft 0 in	None	None
✓	7	S	6	Metal	Low-E Double	Yes	0.3	0.2	N	3.0 ft²	0 ft 6 in	1 ft 0 in	None	None

## INFILTRATION

#	Scope	Method	SLA	CFM 50	ELA	EqLA	ACH	ACH 50
1	Wholehouse	Proposed ACH(50)	.000356	697.2	38.28	71.98	.1339	7

## HEATING SYSTEM

✓	#	System Type	Subtype	Efficiency	Capacity	Block	Ducts
✓	1	Electric Heat Pump/Suppleme	None	HSPF:8.8	17 kBtu/hr	1	sys#1

## INPUT SUMMARY CHECKLIST REPORT

## COOLING SYSTEM

✓	#	System Type	Subtype	Efficiency	Capacity	Air Flow	SHR	Block	Ducts
✓	1	Central Unit/Supplemental for	None	SEER: 15	17 kBtu/hr	510 cfm	0.75	1	sys#1

## HOT WATER SYSTEM

✓	#	System Type	SubType	Location	EF	Cap	Use	SetPnt	Conservation
✓	1	Electric	None	LEFT	0.95	50 gal	60 gal	120 deg	None

## SOLAR HOT WATER SYSTEM

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

## DUCTS

✓	#	--- Supply --- Location	R-Value	Area	--- Return --- Location	Area	Leakage Type	Air Handler	CFM 25 TOT	CFM25 OUT	QN	RLF	HVAC # Heat Cool
✓	1	Attic	6	149.4 ft	Attic	37.35 ft	Default Leakage	LEFT	(Default)	(Default)			1 1

## TEMPERATURES

Programable Thermostat: Y

Ceiling Fans:

Cooling	<input checked="" type="checkbox"/> Jan	<input checked="" type="checkbox"/> Feb	<input checked="" type="checkbox"/> Mar	<input type="checkbox"/> Apr	<input type="checkbox"/> May	<input checked="" type="checkbox"/> Jun	<input checked="" type="checkbox"/> Jul	<input checked="" type="checkbox"/> Aug	<input checked="" type="checkbox"/> Sep	<input type="checkbox"/> Oct	<input checked="" type="checkbox"/> Nov	<input checked="" type="checkbox"/> Dec
Heating	<input checked="" type="checkbox"/> Jan	<input checked="" type="checkbox"/> Feb	<input checked="" type="checkbox"/> Mar	<input checked="" type="checkbox"/> Apr	<input checked="" type="checkbox"/> May	<input checked="" type="checkbox"/> Jun	<input checked="" type="checkbox"/> Jul	<input checked="" type="checkbox"/> Aug	<input checked="" type="checkbox"/> Sep	<input checked="" type="checkbox"/> Oct	<input checked="" type="checkbox"/> Nov	<input checked="" type="checkbox"/> Dec
Venting	<input checked="" type="checkbox"/> Jan	<input checked="" type="checkbox"/> Feb	<input checked="" type="checkbox"/> Mar	<input checked="" type="checkbox"/> Apr	<input checked="" type="checkbox"/> May	<input checked="" type="checkbox"/> Jun	<input checked="" type="checkbox"/> Jul	<input checked="" type="checkbox"/> Aug	<input checked="" type="checkbox"/> Sep	<input checked="" type="checkbox"/> Oct	<input checked="" type="checkbox"/> Nov	<input checked="" type="checkbox"/> Dec

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

## MASS

Mass Type	Area	Thickness	Furniture Fraction	Space
Default(8 lbs/sq.ft.)	0 ft²	0 ft	0.3	REAR
Default(8 lbs/sq.ft.)	0 ft²	0 ft	0.3	LEFT



**ENERGY PERFORMANCE LEVEL (EPL) DISPLAY CARD****ESTIMATED ENERGY PERFORMANCE INDEX\* = 95****The lower the Energy Performance Index, the more efficient the home.**

1. New home or, addition	1. <u>Addition</u>	12. Ducts, location & insulation level	
2. Single-family or multiple-family	2. <u>Single-family</u>	a) Supply ducts	R <u>6.0</u>
3. No. of units (if multiple-family)	3. <u>1</u>	b) Return ducts	R <u>6.0</u>
4. Number of bedrooms	4. <u>0</u>	c) AHU location	<u>LEFT</u>
5. Is this a worst case? (yes/no)	5. <u>No</u>	13. Cooling system:	Capacity <u>17.0</u>
6. Conditioned floor area (sq. ft.)	6. <u>747</u>	a) Split system	SEER <u>        </u>
7. Windows, type and area		b) Single package	SEER <u>        </u>
a) U-factor:(weighted average)	7a. <u>0.300</u>	c) Ground/water source	SEER/COP <u>        </u>
b) Solar Heat Gain Coefficient (SHGC)	7b. <u>0.200</u>	d) Room unit/PTAC	EER <u>        </u>
c) Area	7c. <u>38.0</u>	e) Other	<u>15.0</u>
8. Skylights		14. Heating system:	Capacity <u>17.0</u>
a) U-factor:(weighted average)	8a. <u>NA</u>	a) Split system heat pump	HSPF <u>        </u>
b) Solar Heat Gain Coefficient (SHGC)	8b. <u>NA</u>	b) Single package heat pump	HSPF <u>        </u>
9. Floor type, insulation level:		c) Electric resistance	COP <u>        </u>
a) Slab-on-grade (R-value)	9a. <u>0.0</u>	d) Gas furnace, natural gas	AFUE <u>        </u>
b) Wood, raised (R-value)	9b. <u>        </u>	e) Gas furnace, LPG	AFUE <u>        </u>
c) Concrete, raised (R-value)	9c. <u>        </u>	f) Other	<u>8.80</u>
10. Wall type and insulation:		15. Water heating system	
A. Exterior:		a) Electric resistance	EF <u>0.95</u>
1. Wood frame (Insulation R-value)	10A1. <u>13.0</u>	b) Gas fired, natural gas	EF <u>        </u>
2. Masonry (Insulation R-value)	10A2. <u>        </u>	c) Gas fired, LPG	EF <u>        </u>
B. Adjacent:		d) Solar system with tank	EF <u>        </u>
1. Wood frame (Insulation R-value)	10B1. <u>        </u>	e) Dedicated heat pump with tank	EF <u>        </u>
2. Masonry (Insulation R-value)	10B2. <u>        </u>	f) Heat recovery unit	HeatRec% <u>        </u>
11. Ceiling type and insulation level		g) Other	<u>        </u>
a) Under attic	11a. <u>38.0</u>	16. HVAC credits claimed (Performance Method)	
b) Single assembly	11b. <u>        </u>	a) Ceiling fans	<u>        </u>
c) Knee walls/skylight walls	11c. <u>        </u>	b) Cross ventilation	<u>No</u>
d) Radiant barrier installed	11d. <u>No</u>	c) Whole house fan	<u>No</u>
		d) Multizone cooling credit	<u>        </u>
		e) Multizone heating credit	<u>        </u>
		f) Programmable thermostat	<u>Yes</u>

\*Label required by Section R303.1.3 of the Florida Building Code, Energy Conservation, if not DEFAULT.

I certify that this home has complied with the Florida Building Code, Energy Conservation, 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: 8/26/19Address of New Home: 1545 Centerville AveCity/FL Zip: Fort White, FL

# Florida Building Code, Energy Conservation, 6th Edition (2017)

## Mandatory Requirements for Residential Performance, Prescriptive and ERI Methods

ADDRESS: 1545 Centerville Ave  
Fort White, FL,

Permit Number:

### MANDATORY REQUIREMENTS See individual code sections for full details.



#### SECTION R401 GENERAL



**R401.3 Energy Performance Level (EPL) display card (Mandatory).** The building official shall require that an energy performance level (EPL) display card be completed and certified by the builder to be accurate and correct before final approval of the building for occupancy. Florida law (Section 553.9085, Florida Statutes) requires the EPL display card to be included as an addendum to each sales contract for both presold and nonpresold residential buildings. The EPL display card contains information indicating the energy performance level and efficiencies of components installed in a dwelling unit. The building official shall verify that the EPL display card completed and signed by the builder accurately reflects the plans and specifications submitted to demonstrate code compliance for the building. A copy of the EPL display card can be found in Appendix RD.



**R402.4 Air leakage (Mandatory).** The building thermal envelope shall be constructed to limit air leakage in accordance with the requirements of Sections R402.4.1 through R402.4.5.

**Exception:** Dwelling units of R-2 Occupancies and multiple attached single family dwellings shall be permitted to comply with Section C402.5.



**R402.4.1 Building thermal envelope.** The building thermal envelope shall comply with Sections R402.4.1.1 and R402.4.1.2. The sealing methods between dissimilar materials shall allow for differential expansion and contraction.



**R402.4.1.1 Installation.** The components of the building thermal envelope as listed in Table R402.4.1.1 shall be installed in accordance with the manufacturer's instructions and the criteria listed in Table R402.4.1.1, as applicable to the method of construction. Where required by the code official, an approved third party shall inspect all components and verify compliance.



**R402.4.1.2 Testing.** The building or dwelling unit shall be tested and verified as having an air leakage rate not exceeding seven air changes per hour in Climate Zones 1 and 2, and three air changes per hour in Climate Zones 3 through 8. Testing shall be conducted in accordance with ANSI/RESNET/ICC 380 and reported at a pressure of 0.2 inch w.g. (50 pascals). Testing shall be conducted by either individuals as defined in Section 553.993(5) or (7), Florida Statutes, or individuals licensed as set forth in Section 489.105(3)(f), (g) or (i) or an approved third party. A written report of the results of the test shall be signed by the party conducting the test and provided to the code official. Testing shall be performed at any time after creation of all penetrations of the building thermal envelope.

**Exception:** Testing is not required for additions, alterations, renovations, or repairs, of the building thermal envelope of existing buildings in which the new construction is less than 85 percent of the building thermal envelope.

During testing:

1. Exterior windows and doors, fireplace and stove doors shall be closed, but not sealed, beyond the intended weatherstripping or other infiltration control measures.
2. Dampers including exhaust, intake, makeup air, backdraft and flue dampers shall be closed, but not sealed beyond intended infiltration control measures.
3. Interior doors, if installed at the time of the test, shall be open.
4. Exterior doors for continuous ventilation systems and heat recovery ventilators shall be closed and sealed.
5. Heating and cooling systems, if installed at the time of the test, shall be turned off.
6. Supply and return registers, if installed at the time of the test, shall be fully open.



**R402.4.2 Fireplaces.** New wood-burning fireplaces shall have tight-fitting flue dampers or doors, and outdoor combustion air. Where using tight-fitting doors on factory-built fireplaces listed and labeled in accordance with UL 127, the doors shall be tested and listed for the fireplace. Where using tight-fitting doors on masonry fireplaces, the doors shall be listed and labeled in accordance with UL 907.



**R402.4.3 Fenestration air leakage.** Windows, skylights and sliding glass doors shall have an air infiltration rate of no more than 0.3 cfm per square foot (1.5 L/s/m<sup>2</sup>), and swinging doors no more than 0.5 cfm per square foot (2.6 L/s/m<sup>2</sup>), when tested according to NFRC 400 or AAMA/WDMA/CSA 101/I.S.2/A440 by an accredited, independent laboratory and listed and labeled by the manufacturer.

**Exception:** Site-built windows, skylights and doors.

## MANDATORY REQUIREMENTS - (Continued)

- ☐ **R402.4.4 Rooms containing fuel-burning appliances.** In Climate Zones 3 through 8, where open combustion air ducts provide combustion air to open combustion fuel burning appliances, the appliances and combustion air opening shall be located outside the building thermal envelope or enclosed in a room, isolated from inside the thermal envelope. Such rooms shall be sealed and insulated in accordance with the envelope requirements of Table R402.1.2, where the walls, floors and ceilings shall meet not less than the basement wall R-value requirement. The door into the room shall be fully gasketed and any water lines and ducts in the room insulated in accordance with Section R403. The combustion air duct shall be insulated where it passes through conditioned space to a minimum of R-8.

### Exceptions:

1. Direct vent appliances with both intake and exhaust pipes installed continuous to the outside.
2. Fireplaces and stoves complying with Section R402.4.2 and Section R1006 of the Florida Building Code, Residential.

- ☐ **R402.4.5 Recessed lighting.** Recessed luminaires installed in the building thermal envelope shall be sealed to limit air leakage between conditioned and unconditioned spaces. All recessed luminaires shall be IC-rated and labeled as having an air leakage rate not more than 2.0 cfm (0.944 L/s) when tested in accordance with ASTM E283 at a 1.57 psf (75 Pa) pressure differential. All recessed luminaires shall be sealed with a gasket or caulk between the housing and the interior wall or ceiling covering.

## SECTION R403 SYSTEMS

### R403.1 Controls.

- ☐ **R403.1.1 Thermostat provision (Mandatory).** At least one thermostat shall be provided for each separate heating and cooling system.

- ☐ **R403.1.3 Heat pump supplementary heat (Mandatory).** Heat pumps having supplementary electric-resistance heat shall have controls that, except during defrost, prevent supplemental heat operation when the heat pump compressor can meet the heating load.

- ☐ **R403.3.2 Sealing (Mandatory)** All ducts, air handlers, filter boxes and building cavities that 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 C403.2.9.2 of the Commercial Provisions of this code and shall be shown to meet duct tightness criteria below.

Duct tightness shall be verified by testing in accordance with ANSI/RESNET/ICC 380 by either individuals as defined in Section 553.993(5) or (7), Florida Statutes, or individuals licensed as set forth in Section 489.105(3)(f), (g) or (i), Florida Statutes, to be "substantially leak free" in accordance with Section R403.3.3.

- ☐ **R403.3.2.1 Sealed air handler.** Air handlers shall have a manufacturer's designation for an air leakage of no more than 2 percent of the design airflow rate when tested in accordance with ASHRAE 193.

- ☐ **R403.3.3 Duct testing (Mandatory).** Ducts shall be pressure tested to determine air leakage by one of the following methods:

1. Rough-in test: Total leakage shall be measured with a pressure differential of 0.1 inch w.g. (25 Pa) across the system, including the manufacturer's air handler enclosure if installed at the time of the test. All registers shall be taped or otherwise sealed during the test.
2. Postconstruction test: Total leakage shall be measured with a pressure differential of 0.1 inch w.g. (25 Pa) across the entire system, including the manufacturer's air handler enclosure. Registers shall be taped or otherwise sealed during the test.

### Exceptions:

1. A duct air leakage test shall not be required where the ducts and air handlers are located entirely within the building thermal envelope.
2. Duct testing is not mandatory for buildings complying by Section 405 of this code.

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

- ☐ **R403.3.5 Building cavities (Mandatory).** Building framing cavities shall not be used as ducts or plenums.

- ☐ **R403.4 Mechanical system piping insulation (Mandatory).** Mechanical system piping capable of carrying fluids above 105°F (41°C) or below 55°F (13°C) shall be insulated to a minimum of R-3.

- ☐ **R403.4.1 Protection of piping insulation.** Piping insulation exposed to weather shall be protected from damage, including that caused by sunlight, moisture, equipment maintenance and wind, and shall provide shielding from solar radiation that can cause degradation of the material. Adhesive tape shall not be permitted.

- ☐ **R403.5.1 Heated water circulation and temperature maintenance systems (Mandatory)** Heated water circulation systems shall be in accordance with Section R403.5.1.1. Heat trace temperature maintenance systems shall be in accordance with Section R403.5.1.2. Automatic controls, temperature sensors and pumps shall be accessible. Manual controls shall be readily accessible.

- ☐ **R403.5.1.1 Circulation systems.** Heated water circulation systems shall be provided with a circulation pump. The system return pipe shall be a dedicated return pipe or a cold water supply pipe. Gravity and thermosiphon circulation systems shall be prohibited. Controls for circulating hot water system pumps shall start the pump based on the identification of a demand for hot water within the occupancy. The controls shall automatically turn off the pump when the water in the circulation loop is at the desired temperature and when there is no demand for hot water.

- ☐ **R403.5.1.2 Heat trace systems.** Electric heat trace systems shall comply with IEEE 515.1 or UL 515. Controls for such systems shall automatically adjust the energy input to the heat tracing to maintain the desired water temperature in the piping in accordance with the times when heated water is used in the occupancy.