CEC # 200324h
laura@lennonrealtygroup.com

Structure Investigation Report

Prepared For:

Mr. & Mrs. Pascoe

c/o: Ms. L. Lennon ~ Lennon Realty Group

Site Location:
40 Buck Ridge Road
Louisburg, North Carolina 27549

Prepared By:

Carter Engineering & Consulting, PLLC
Structural + Civil

Sean C. Carter, P.E.

CARTER ENGINEERING & CONSULTING, PLLC

STRUCTURAL + CIVIL

Mr. & Mrs. Pascoe
c/o: Ms. L. Lennon
Lennon Realty Group
4112 Blue Ridge Road, Suite 200
Raleigh, North Carolina 27612

Date: **26 March 2020**

Project: **Manufactured Home HUD/FHA Permanent Foundation Engineering Certification**
Project No.: **200324h**
Location: **40 Buck Ridge Road, Louisburg, North Carolina 27549**
Evaluation: **24 March 2020**

Dear Mr. & Mrs. Pascoe:

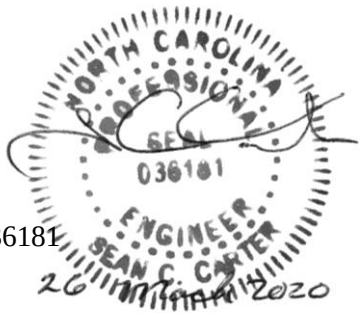
The manufactured home was identified as HUD label NTA-1243739 and HUD label NTA-1243697, and per available records described as 2004 HBOS Manufacturing LP, Oakwood Homes, serial #HONCO7716030, model #1032A/B, and originally setup in its current location on its original foundation.

As a registered North Carolina professional engineer in good standing and faith, I do certify that the observable foundation system and all ancillary components, including wood decks and steps in direct contact, have been constructed and installed at the above referenced location, for use as a private household, do not compromise the integrity of the existing structure, and meet the intent of the standards of:

- HUD Permanent Foundation Guide for Manufactured Housing;
- HUD Manufactured Home Construction and Safety Standards (CFR3280); and,
- FHA Minimum Requirements for Manufactured Housing Foundation Systems

This letter is for the express use by the client. Any use of which a third party makes of this report, or any reliance or decisions to be made, based on it, are the responsibility of such third parties; Carter Engineering & Consulting, PLLC. accepts no responsibility for damages suffered by any third party as a result of decisions made or actions based on this letter. This letter has been based, generally, on a non-intrusive and non-destructive visual review and is not an exhaustive study and should not be interpreted as such.

Sincerely,



Sean C. Carter, PE
North Carolina No. 036181

I. ACTION

Ms. Lennon retained the services of Carter Engineering & Consulting, PLLC (CEC) to perform a non-invasive / non-destructive evaluation of the foundation system for the above noted mobile home. Mr. Sean C. Carter, P.E. of CEC visited the home on 24 March 2020 and performed this service.

II. RESPONSE

The intent of this evaluation was to determine if the current condition of the permanent foundation system of the mobile home is adequate as it now stands to meet the guidelines of:

- HUD Permanent Foundation Guide for Manufactured Housing; and,
- FHA Minimum Requirements for Manufactured Housing Foundation Systems

This evaluation and report does not include code compliance, municipal regulatory compliance, subsurface investigation, or records research related to this building.

This evaluation is limited to observations made from visual evidence. No destructive or invasive testing was performed. The report is not to be considered a guarantee of condition and no warranty is implied. This report is, however, an opinion about the condition of this building. It is based on visual evidence available during a diligent evaluation of all reasonably accessible areas. No surface materials were removed, no destructive testing undertaken, nor inspections of the interior of the home taken into account for this report. This report is not an exhaustive technical evaluation.

As Professional Engineers, it is our responsibility to evaluate available evidence relevant to the major systems in this building. We are not, however, responsible for conditions that could not be seen or were not within the scope of our service at the time of the assessment.

III. DESCRIPTION

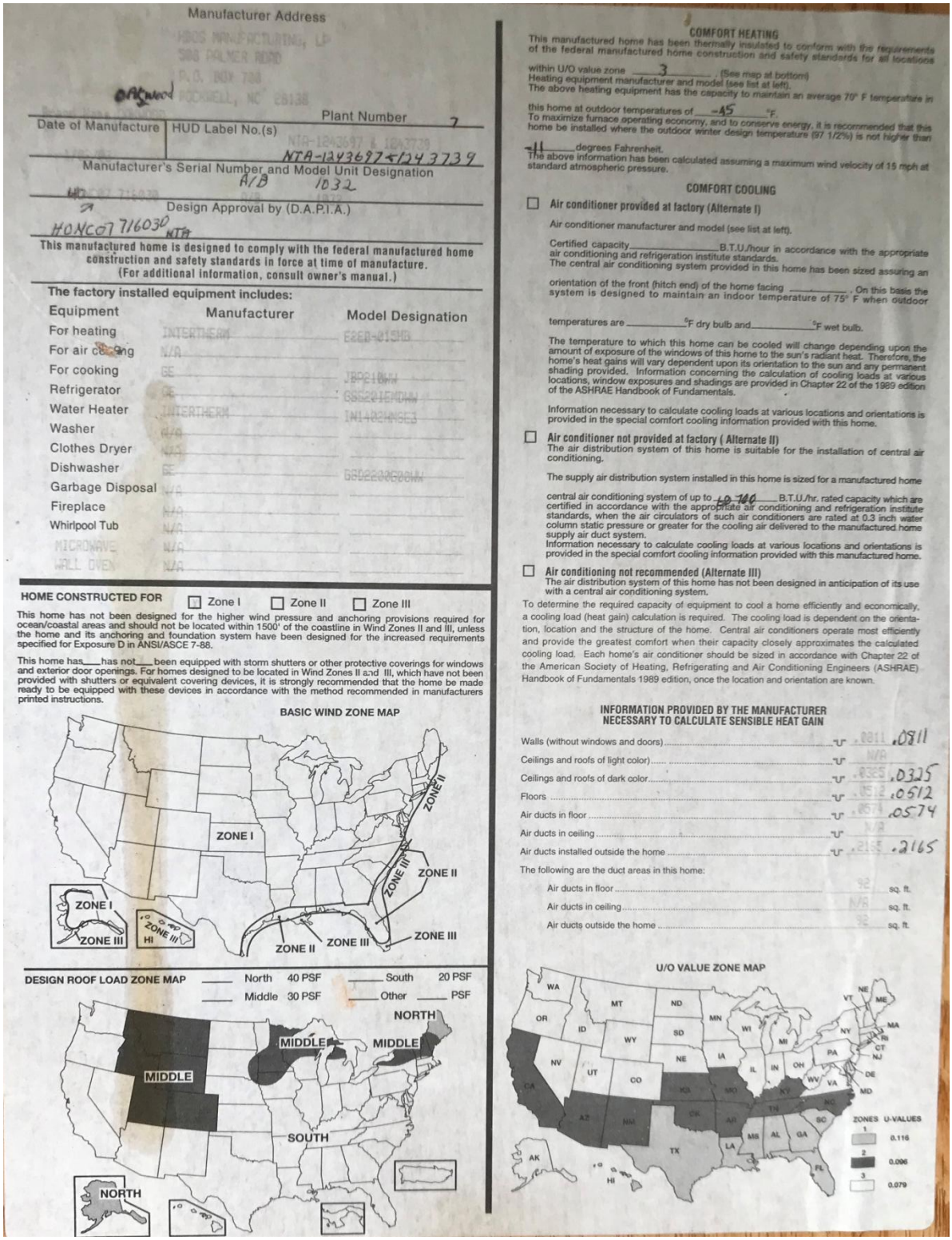
Per the on-site evaluation completed and outlined in the attached photos, the chassis of the double unit is supported by non-bonded masonry piers on proper concrete masonry footings that are embedded below the grade (see photos). The chassis of the home is anchored by the minimum quantity of conventional metal straps to the continuous masonry base of the perimeter masonry unit curtain wall (see photos). As with similarly constructed foundations, this structure may have a tendency to settle over time. Therefore, periodic adjustments may be required. The floor of the home is more than 18-inches above ground level.

IV. FINDINGS & CONCLUSIONS:

At the time of this site visit, pursuant to the requirements and guidelines set forth in the HUD handbook "Permanent Foundation Guide for Manufactured Housing", the construction and installation of the subject foundation system is in compliance to meet the intent of the HUD and FHA standards and guidelines, with the exception of the non-bonded piers. Foundation pier bonding with a fiber reinforced coating is to be addressed.

If you have any questions about this report or evaluation, please feel free to call. Return assessments to the residence are subject to additional fees.

V. PHOTOS:



Manufacturer Address

Plant Number 7

Date of Manufacture | HUD Label No.(s)

NTA-1243697 & 1243739

Manufacturer's Serial Number and Model Unit Designation

A/B 1032

Design Approval by (D.A.P.I.A.)

HONC07716030 NTA

This manufactured home is designed to comply with the federal manufactured home construction and safety standards in force at time of manufacture. (For additional information, consult owner's manual.)

The factory installed equipment includes:

Equipment	Manufacturer	Model Designation
For heating	INTERTHERM	E2EB-015HB
For air cooling	N/A	
For cooking	GE	JBP21BWH
Refrigerator	GE	GBS21EMDWW
Water Heater	INTERTHERM	IN1402HNSE3
Washer	N/A	
Clothes Dryer	N/A	
Dishwasher	GE	GSD2200GB0WW
Garbage Disposal	N/A	
Fireplace	N/A	
Whirlpool Tub	N/A	
MICROWAVE	N/A	
WALL OVEN	N/A	

HOME CONSTRUCTED FOR ☐ Zone I ☐ Zone II ☐ Zone III

This home has not been designed for the higher wind pressure and anchoring provisions required for ocean/coastal areas and should not be located within 1500' of the coastline in Wind Zones II and III, unless the home and its anchoring and foundation system have been designed for the increased requirements specified for Exposure D in ANSI/ASCE 7-88.

This home has___has not___ been equipped with storm shutters or other protective coverings for windows and exterior door openings. For homes designed to be located in Wind Zones II and III, which have not been provided with shutters or equivalent covering devices, it is strongly recommended that the home be made ready to be equipped with these devices in accordance with the method recommended in manufacturers printed instructions.

BASIC WIND ZONE MAP

DESIGN ROOF LOAD ZONE MAP ___ North 40 PSF ___ South 20 PSF ___ Middle 30 PSF ___ Other ___ PSF

COMFORT HEATING

This manufactured home has been thermally insulated to conform with the requirements of the federal manufactured home construction and safety standards for all locations

within U/O value zone 3 . (See map at bottom)
Heating equipment manufacturer and model (see list at left).
The above heating equipment has the capacity to maintain an average 70° F temperature in this home at outdoor temperatures of -45 °F.
To maximize furnace operating economy, and to conserve energy, it is recommended that this home be installed where the outdoor winter design temperature (97 1/2%) is not higher than -11 degrees Fahrenheit.
The above information has been calculated assuming a maximum wind velocity of 15 mph at standard atmospheric pressure.

COMFORT COOLING

☐ Air conditioner provided at factory (Alternate I)

Air conditioner manufacturer and model (see list at left).

Certified capacity ___ B.T.U./hour in accordance with the appropriate air conditioning and refrigeration institute standards.
The central air conditioning system provided in this home has been sized assuring an orientation of the front (hitch end) of the home facing ___. On this basis the system is designed to maintain an indoor temperature of 75° F when outdoor temperatures are ___°F dry bulb and ___°F wet bulb.

The temperature to which this home can be cooled will change depending upon the amount of exposure of the windows of this home to the sun's radiant heat. Therefore, the home's heat gains will vary dependent upon its orientation to the sun and any permanent shading provided. Information concerning the calculation of cooling loads at various locations, window exposures and shadings are provided in Chapter 22 of the 1989 edition of the ASHRAE Handbook of Fundamentals.

Information necessary to calculate cooling loads at various locations and orientations is provided in the special comfort cooling information provided with this home.

☐ Air conditioner not provided at factory (Alternate II)
The air distribution system of this home is suitable for the installation of central air conditioning.

The supply air distribution system installed in this home is sized for a manufactured home central air conditioning system of up to 40,000 B.T.U./hr. rated capacity which are certified in accordance with the appropriate air conditioning and refrigeration institute standards, when the air circulators of such air conditioners are rated at 0.3 inch water column static pressure or greater for the cooling air delivered to the manufactured home supply air duct system.
Information necessary to calculate cooling loads at various locations and orientations is provided in the special comfort cooling information provided with this manufactured home.

☐ Air conditioning not recommended (Alternate III)
The air distribution system of this home has not been designed in anticipation of its use with a central air conditioning system.

To determine the required capacity of equipment to cool a home efficiently and economically, a cooling load (heat gain) calculation is required. The cooling load is dependent on the orientation, location and the structure of the home. Central air conditioners operate most efficiently and provide the greatest comfort when their capacity closely approximates the calculated cooling load. Each home's air conditioner should be sized in accordance with Chapter 22 of the American Society of Heating, Refrigerating and Air Conditioning Engineers (ASHRAE) Handbook of Fundamentals 1989 edition, once the location and orientation are known.

INFORMATION PROVIDED BY THE MANUFACTURER NECESSARY TO CALCULATE SENSIBLE HEAT GAIN

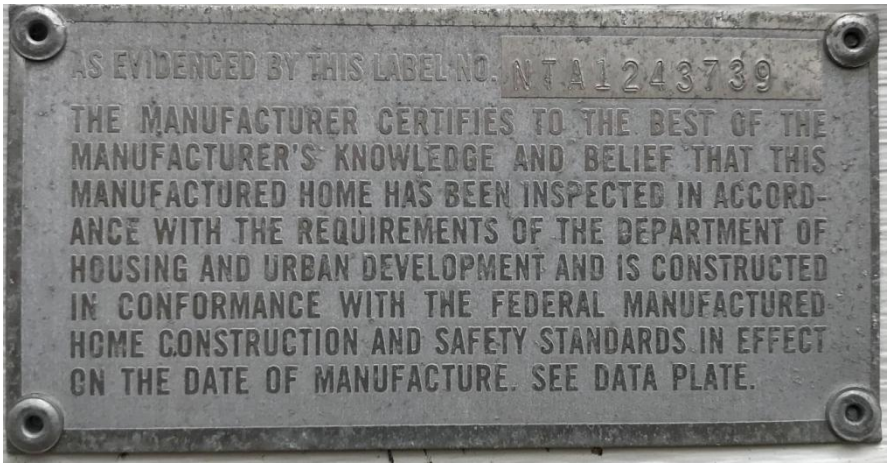
Walls (without windows and doors)	"U"	.0811 .0811
Ceilings and roofs of light color)	"U"	N/A
Ceilings and roofs of dark color	"U"	.0325 .0325
Floors	"U"	.0512 .0512
Air ducts in floor	"U"	.0574 .0574
Air ducts in ceiling	"U"	N/A
Air ducts installed outside the home	"U"	.2135 .2165

The following are the duct areas in this home:

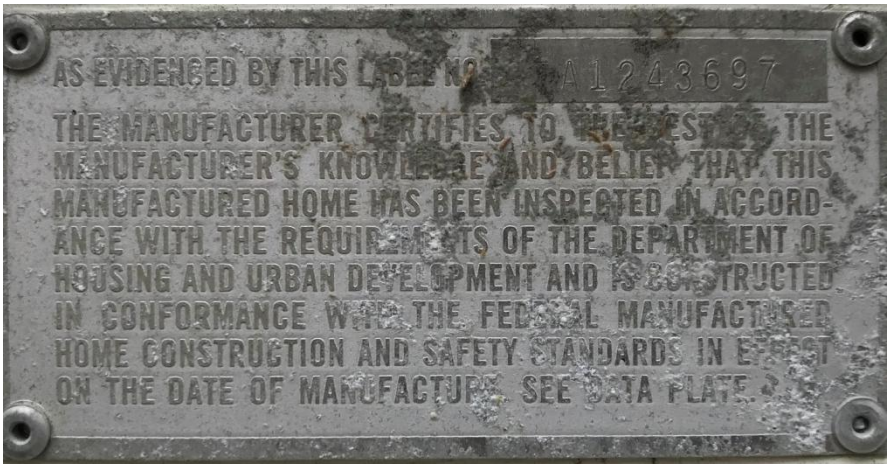
Air ducts in floor	92 sq. ft.
Air ducts in ceiling	N/A sq. ft.
Air ducts outside the home	92 sq. ft.

U/O VALUE ZONE MAP

Data Card (located in crawlspace)



HUD Label (left front) NTA-1243739



HUD Label (left rear) NTA-1243637

Left front and side

Front

Right front and side

Right rear and side

Rear

Left rear and side

Utility service panel (rear wall left side)

Crawl space view of brick masonry curtain wall, perimeter piers, and anchor straps.

Crawl space view of brick masonry curtain wall, perimeter piers, and anchor straps.

Crawl space view of brick masonry curtain wall, perimeter piers, and anchor straps.

Crawl space view of strap anchorage into concrete

Crawl space view of interior piers

Crawl space view of interior piers

View of interior piers and center joint marriage piers.

View of interior pier and strap anchorage.

View of interior pier on footing.

View of front free standing detached deck.

View of rear free standing detached steps.