

**D. ALLEN HUGHES
ENGINEERING, Inc.**

1669 Jimmie Kerr Rd., Haw River, NC 27258
336-578-8634, Firm No. C-2951

April 15, 2021

J and D Contractor Service
22 Clearfield Dr.
Angier, NC 27501

Attention: Lee Johnson

Reference: Structural Evaluation of Attic Space for Living Area, Design Drawing for Shed Dormer Framing
15 Clave Howard Dr., Fuquay Varina, NC
Project No. D21rc37

Dear Mr. Johnson:

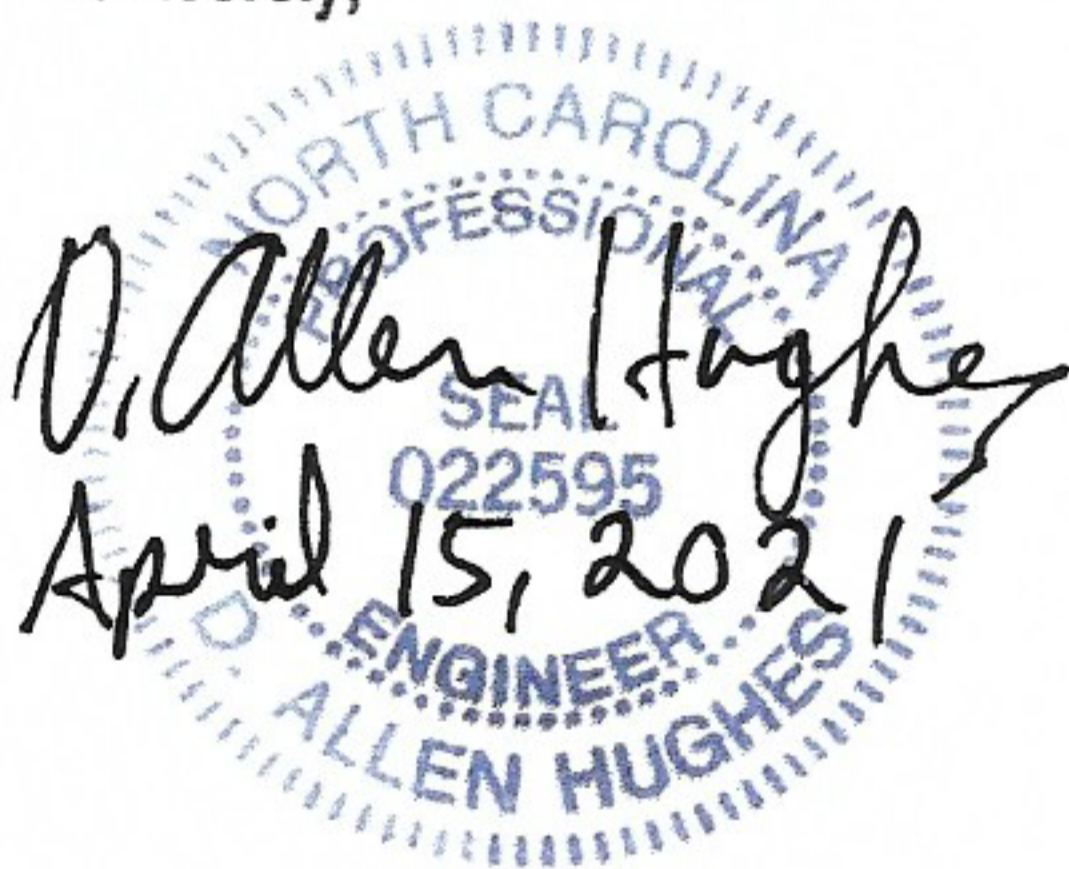
Thank you for using D. Allen Hughes Engineering. We have evaluated the space currently used as attic space at the above referenced address. You have provided a sketch of the upstairs floor plan and framing which is included as Figure 1. The sketch has been compared to the actual construction and was found to accurately reflect the room sizes and framing dimensions. It is understood that it is planned to convert the upstairs areas to living area, except the areas 1 and 4 in Figure 1, which are planned to be attic storage areas. It is planned to build a non-bearing wall on top of the 2x8 vaulted ceiling joists for the ground floor living room.

The floor joists in all areas except area No. 4 "Storage" were found to consist of 2x10's at 16 in. on center. The floor joists in the "Storage" area No. 4 were found to consist of 2x8's at 16 in. on center. Most of the proposed living area has $\frac{3}{4}$ in. OSB flooring and some has $\frac{1}{2}$ in. OSB. All roof rafters were found to be 2/8's at 16 in. center. The vaulted ceiling joists for the living room on the ground floor consist of 2x10's at 16 in. on center. The bearing walls in the existing attic were confirmed to be located over walls on the ground floor. No construction or material defects were found.

It is planned to construct a 12 ft. wide shed-style dormer at the back of the left side of the upstairs. Figure 1 shows the proposed location of the dormer, Figure 2 shows the side view, and Figure 3 shows the framing details. It is recommended to frame the dormer according to Figures 2 and 3.

It is recommended to replace the $\frac{1}{2}$ in. OSB flooring in the proposed living area with $\frac{3}{4}$ in. OSB. The vaulted ceiling joists for the ground level living room are adequate to support a nonbearing wall. Any issues not addressed in our report or the attached drawings should be constructed in accordance with the NC Residential Code, 2018. Based on testing, observation, measuring and implementation of the recommendations, it is my professional finding that the above referenced areas of the upper-level floor are structurally sound and adequate to support the proposed code prescribed loads for living areas.

Sincerely,



D. Allen Hughes
April 15, 2021

D. Allen Hughes, P.E., President
D. Allen Hughes Engineering, Inc., P.A.

Lee Johnson
POC 919 427 0218
Jeff Greer 919 656 1617
15 Clave Howard Dr.
Fuquay Varina NC 27526

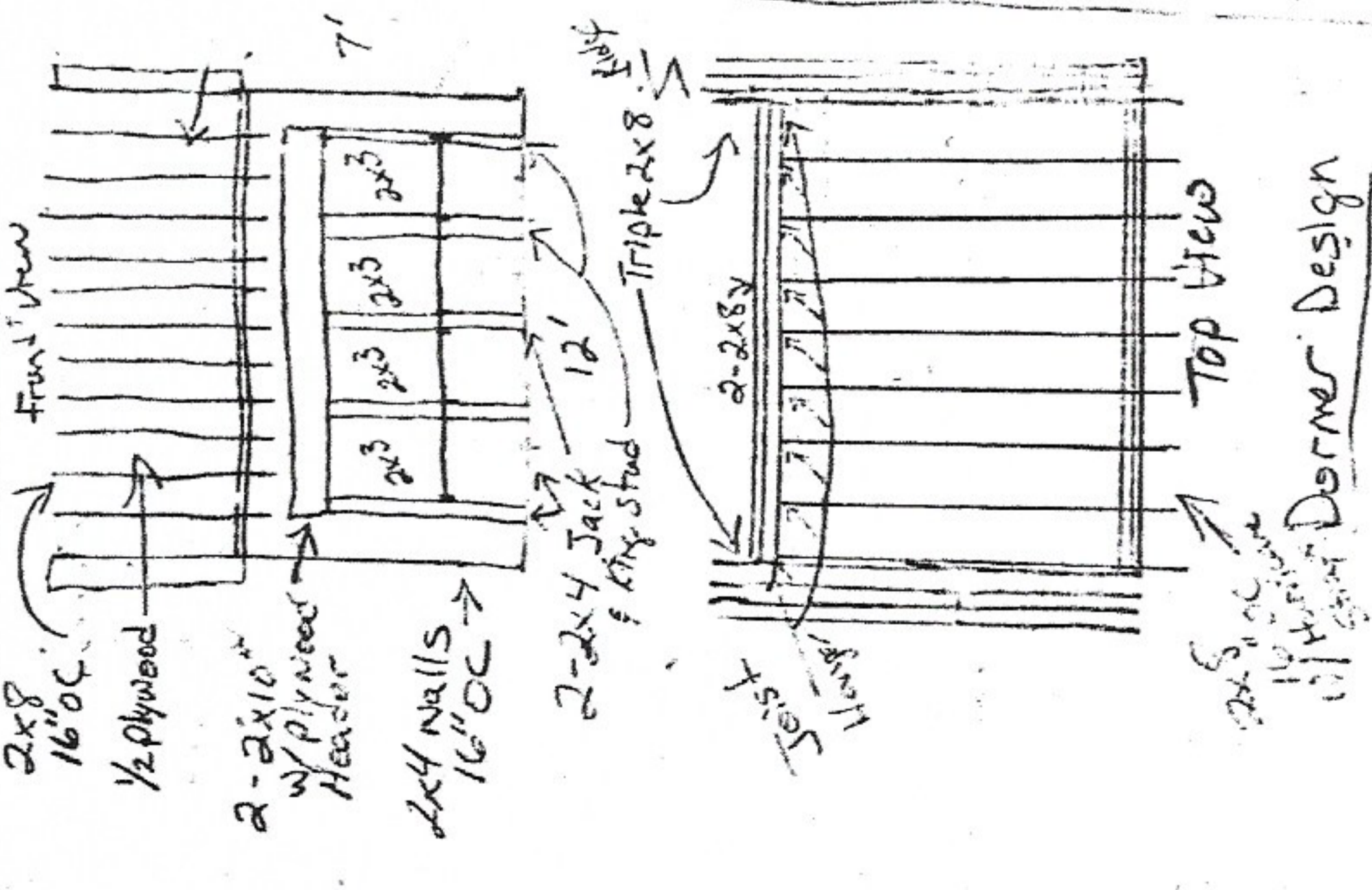
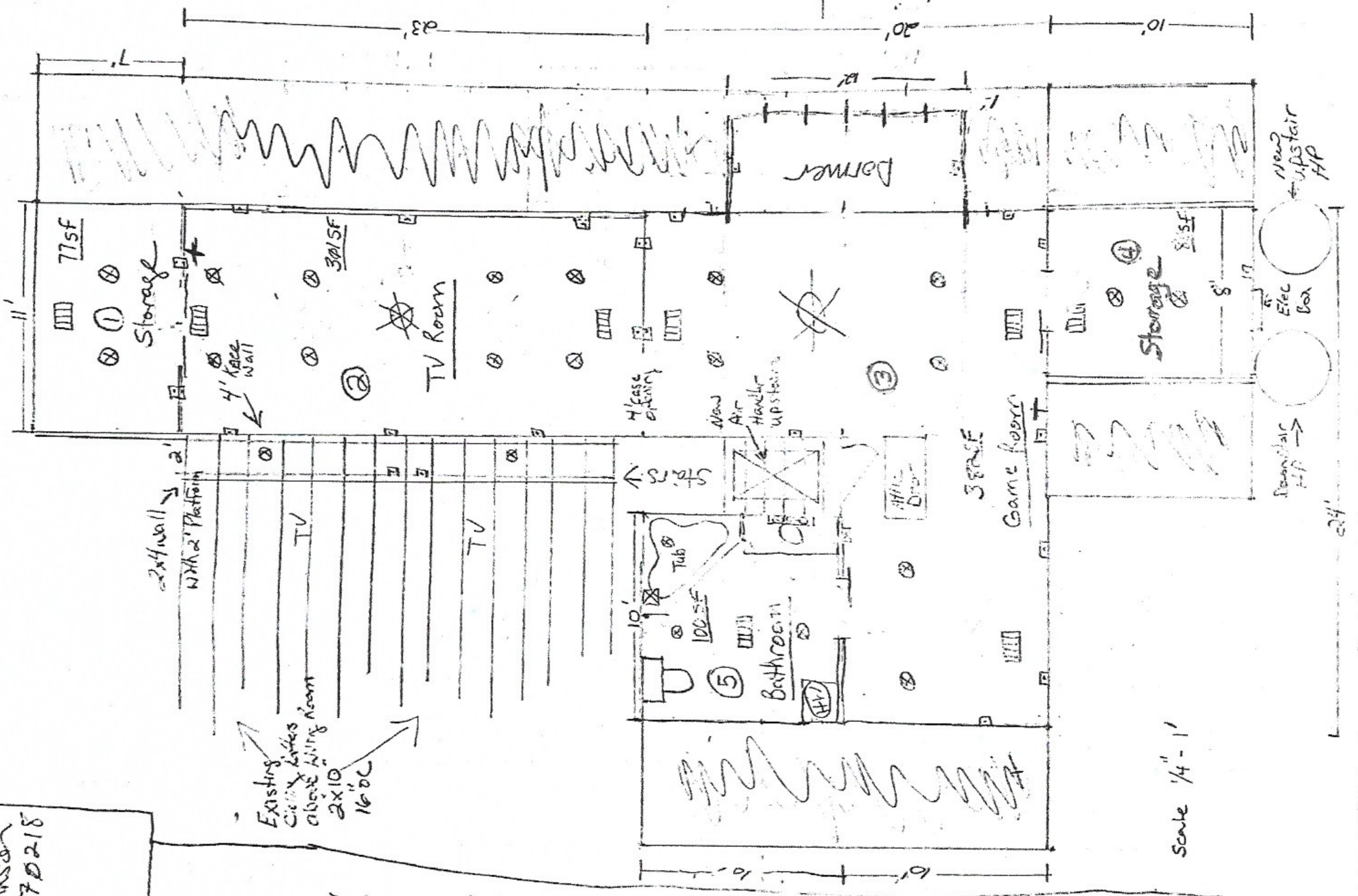


Figure 1
Attic Conversion to
Living Area
Drawn by builder
D. Allen Hughes Engineering
1669 Jimmie Kerr Rd.
Haw River, NC 27258

FRONT



- + Smoke
 - ⊗ Can Light
 - ⊗ Fan w/ light
 - ⊗ Wall Light
 - ⊗ Receptacle
 - ⊗ Crawl space
 - ⊗ AC Vents
 - Existing wall
 - New 2x4 wall
 - ⊗ Bathroom Vent
 - 93.5F Floor
- Add
R34 Insulation All ceiling
R15 Insulation All walls

- ② Areas 1, 2, 4 Install 3/4 Plywood on floor
- ③ Install 2x8 Ceiling Joist Attach with langes if not supported by wall
- ④ USE Existing Flooring & Ceiling Joists (2x8 ceiling / 2x10 Floor)

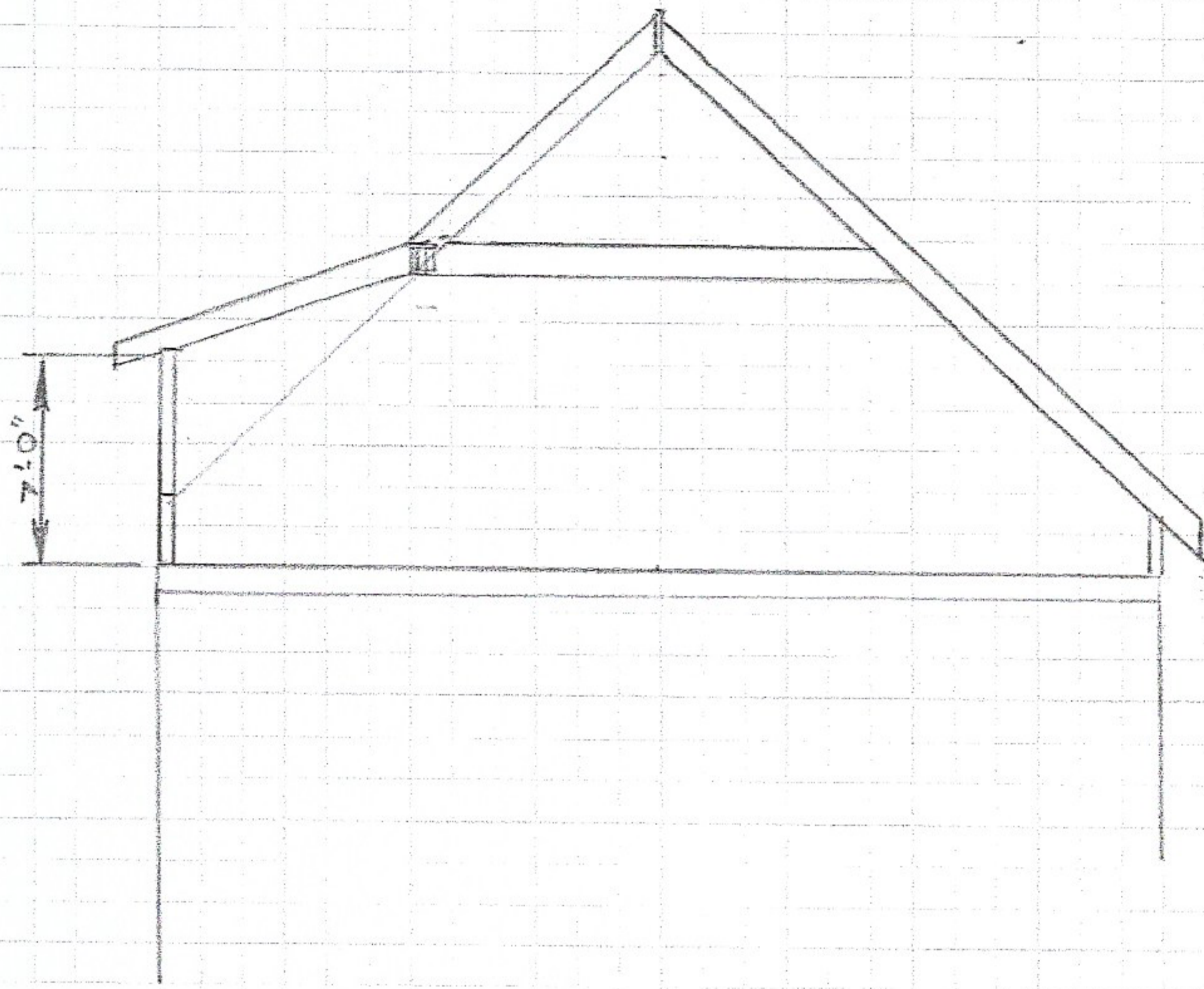
Figure 2.

D. Allen Hughes Engineering
1669 Jimmie Kerr Rd.
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Firm No. C-2951

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15 Clave Howard Dr.
Fuquay-Varina, NC



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APR 15, 2021
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SEAL
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ENGINEER
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Scale: $\frac{1}{8}'' = 1'$

Figure 3

D. Allen Hughes Engineering
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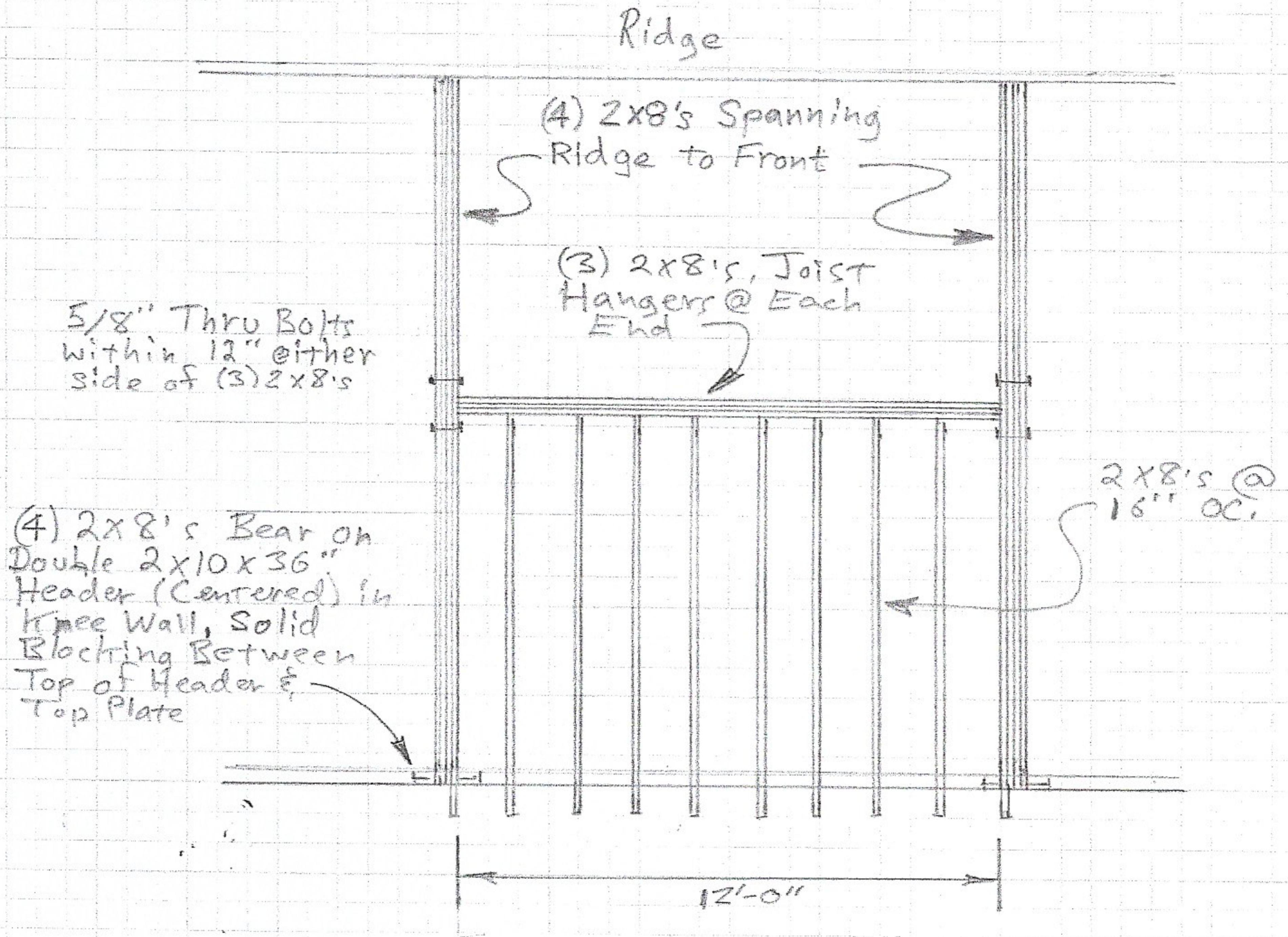
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Plan View

Shed Style Dormer
Existing Framing Not Shown



Scale: 1/4" = 1'

D. Allen Hughes
NORTH CAROLINA PROFESSIONAL ENGINEER
SEAL
022595
APR 15 2021
D. ALLEN HUGHES

Any issues not addressed in this drawing should be constructed in accordance w/ the NC Residential Code, 2018.