TYNDALL
ENGINEERING & DESIGN, P.A.

T 919 773-1200 ▪ F 919 773-9658
250 Shipwash Drive, Suite 104 ▪ Garner ▪ North Carolina ▪ 27529
www.tyndallengineering.com

September 06, 2024

Brandon Smith
Smith Woodworks Inc
Email: sccbsmith@yahoo.com

Reference: Engineering Services
234 Oakridge Duncan Road
Fuquay-Varina, NC 27526
TE&D Project No.: 2201-020111R

To Whom It May Concern;

As requested, a representative of Tyndall Engineering & Design, PA (TE&D) was on-site to observe the following item(s):

1) Homeowner wishes to convert attic to heated finished space.

The following conclusions and recommendations were noted:

1) Based on our observations and analysis, the attic space above the dwelling was framed with 2 x 8 joists at 16" o.c. and 2 x 10 joists at 12" o.c.. The joists appeared to bear on load bearing interior and exterior walls below. Load bearing walls also appeared to transfer to girders, piers, and foundation walls within the foundation framing. It is the opinion of TE&D that the existing attic floor framing is not suitable to support the required (40psf live load and 10psf dead load) loading conditions of the new finished space.

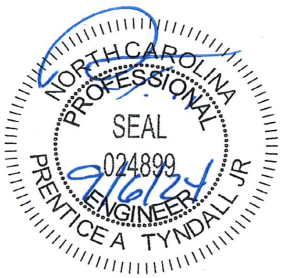
   We understand that the client wishes to use 2 x 12 construction if necessary, to achieve a flush floor with the existing headers within the attic floor system. Based on our observations and analysis, TE&D recommends that the joists above the right side of the home (where the 2 x 8 joists at 16" o.c. are located), be sistered to new additional 2 x 12 joists at 16" o.c. Above the Kitchen/Living Room (where the 2 x 10 joists at 12" o.c. are located), TE&D recommends that new 2 x 12 joists at 12" o.c. be sistered to the existing 2 x 10 joists at 12" o.c.. All new joists are to have full bearing at each end. The reader is referred to page 3 for approximate joist layout.

   Upon completion, the proposed finished attic space will meet the minimum requirements for 40 psf live load and 10 psf dead load as stated in the 2018 North Carolina Residential Building Code requirements for floor load rated for finished walk-up attic space.

We appreciate being able to assist you during this phase of the project. If you need further assistance or require additional information, please do not hesitate to contact us.

Sincerely,
Tyndall Engineering & Design

Tripp Amos
PT III | 2201-020111R



Prentice Tyndall Jr., P.E.

TYNDALL
ENGINEERING & DESIGN, P.A.

T 919 773-1200 ▪ F 919 773-9658
250 Shipwash Drive, Suite 104 ▪ Garner ▪ North Carolina ▪ 27529
www.tyndallengineering.com

Proposed finished attic space

TYNDALL
ENGINEERING & DESIGN, P.A.

T 919 773-1200 ▪ F 919 773-9658
250 Shipwash Drive, Suite 104 ▪ Garner ▪ North Carolina ▪ 27529
www.tyndallengineering.com

NEW FLOOR JOIST LAYOUT (NOT TO SCALE)