



January 31, 2022

Closer Look General Contracting
c/o Phil Oddo

Re: Vaulted Ceiling Letter
288 Tilden Howington Drive
Lillington, NC

Dear Mr. Oddo,

At your request, we have reviewed the structural plans for the addition at the subject address provided by FGA Associates, LLC dated October 7, 2021. It is our understanding that the vaulted ceiling at the addition was installed with a 2x10 ridge board in lieu of the 1.75" x 14" LVL Ridge beam specified in the Ceiling Framing Plan on S-2. We have provided the following recommendations regarding the vaulted ceiling. Note, that we have not provided a full structural analysis or design of any structural components on the drawings except for the ridge beam.

The report is intended to cover only those premises that may be examined visually without excavation, removing surface materials and disassembling components. The scope of the inspection does not assure that the property conforms to any regulations, restrictions, or building codes that may be in effect at its location other than what is explicitly described. The following provides our evaluation of these improvements with respect to the current 2018 North Carolina Residential Code. For purposes of this report, all directions (left, right, rear, etc.) are taken from the viewpoint of an observer standing outside and facing the front door of the home. All construction and workmanship shall adhere to the 2018 NCRC.

RECOMMENDATIONS

If there are any questions or concerns regarding location or method of repair contact the engineer prior to construction.

1. We recommend installing a new minimum 1.75"x14" LVL structural ridge beam (E2.0, FB=3100 PSI or equivalent) spanning a maximum of 16'-6" between the load bearing points. The new ridge beam should be supported by a minimum (3) 2x4 jack studs at each end. Attach the new ridge beam to the jack studs at each end with Simpson HTS16 twist straps (or equivalent). The new ridge beam should be installed tight to and below the existing ridge board. Attach the new ridge beam to the existing 2x10 ridge board with Simpson CS16 straps (or equivalent) spaced at 32" on-center (every other rafter), staggered from each side, with a minimum 6" lap onto the ridge board and onto the new ridge beam (12" minimum total strap length).
2. Attach the ends of the 2-2x10 header (below the jack studs at the left end of the ridge beam) to the jack studs at each end with Simpson CS16 straps (or equivalent) with minimum 8" lap onto the header and jack studs (16" minimum total strap length). The jack studs below the right end of the ridge beam should also be attached with these straps above and below the double top plate.
3. The contractor should verify the jack studs below the right end of the new beam are supported by a minimum 16"x16"x8"-thick concrete footing. The jack studs below the 2-2x10 header below the left side of the beam should be supported by the new specified concrete footing on S-2. Attach the jack studs below each end of the beam to the concrete footing with Simpson DTT2Z holdowns (or equivalent) with 1/2" diameter threaded rods doweled into concrete footings with Simpson SET XP epoxy (or equivalent) (minimum 6" embed).

General Notes:

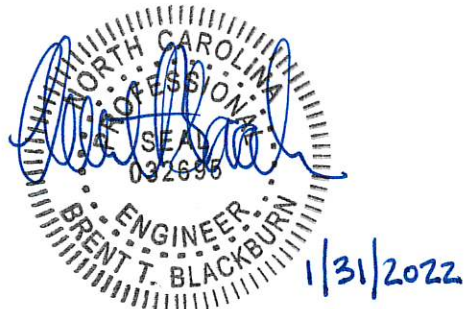
- All new lumber should be SPF No.2 or equivalent. All lumber exposed to concrete/masonry or weather must be pressure treated.
- All new LVL members are to be E2.0, Fb=3100 PSI (or equivalent) and plies are to be attached per manufacturer specifications. LVL members exposed to weather should be wrapped per manufacturer specifications.
- All new concrete is to have a minimum 28-day strength of 3000 psi.
- New concrete footings are to be installed a minimum 12” below grade (to the bottom of the footing) and in no case less than frost depth.
- Soils below new foundation components to be contractor verified to be a minimum 2000 psf bearing capacity.
- All new metal hangers/ties/clips to be installed per manufacturer specifications.
- All fastening shall conform to R602.3(1) in the 2018 NC Building Code: Residential Code.
- With any structural changes, finish material cracks and minor movements are typical and expected. These are associated with settlement and allowable deflection generally observed after construction of an addition or remodel/repair.

We trust that this letter provides the information you require. Please contact us at 919-465-3801 if you have any questions. Thank you for the opportunity to be of assistance to you.

Sincerely,

Matthew Carroll

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