



April 10, 2020

Atlantic Builders and Design
c/o Todd Seleck

Re: Screen Porch Beam Design Letter
72 Trophy Ridge
Fuquay Varina, NC

Dear Mr. Seleck,

At your request, we have provided design guidance for ridge and perimeter beam supports for the new screen porch at the subject address. The new screen porch is to be approximately 20'x22'. We have provided recommendations below regarding the ridge beam, perimeter beams, and associated supports. Note the scope of this design is for beam supports and does not include wall, roof, or floor framing other than what is explicitly described below.

The contractor should verify all dimensions prior to ordering materials. For purposes of this report, all directions (left, right, rear, etc.) are taken from the viewpoint of an observer standing and facing the front door of the home. If the contractor has any questions or concerns regarding the method of construction or if conditions vary from what is described below, the engineer should be consulted. Likewise, if any changes to sizes or modifications to the structure are desired other than what is explicitly described below, the engineer should be consulted. All construction and workmanship shall adhere to the 2018 NC Building Code.

RECOMMENDATIONS

1. The ridge beam is to be comprised of a new 2-1.75"x14" LVL ridge beam spanning front to rear (up to 20'). Rafters are to be attached to the new ridge beam with Simpson LRU Hangers (or equivalent).
 - a. The new ridge beam is to be supported by new 3-2x4 jack studs on the forward bearing location which are embedded into the existing wall. The continuous masonry wall below the jack studs is to have a minimum 16"-wide by 8"-thick continuous footing below.
 - b. The rear bearing location of the ridge beam is to be supported by a 4x4 post. The 4x4 post is to bear at the mid-span of a new 2-1.75"x14" LVL beam spanning left to right up to 22'. The ends of the new 14" LVL (spanning left to right) are to be supported by 8x8 posts on 24"x24"x8" thick concrete footings.
2. The headers along the left and right perimeters of the new porch roof are to be comprised of new 2-1.75"x11.875" LVL beams spanning front to rear (up to 20'). Rafters are to be tied to the new headers with Simpson H2.5A ties (or equivalent).
 - a. The new beams are to be supported by new 2-2x4 jack studs on the forward bearing locations which are embedded into the existing wall. The continuous masonry wall below the jack studs is to have a minimum 16"-wide by 8"-thick continuous footing below.
 - b. The rear bearing locations of the new beams are to be supported on the 8x8 posts denoted in Recommendation #1b.

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 posts are to be positively attached at each end with Simpson Base and Cap System (or equivalent)
- Contractor to confirm minimum soil bearing capacity of 2000 psf.
- All new concrete is to have a minimum 28-day strength of 3000 psi.
- All new metal hangers/ties/clips to be installed per manufacturer specifications and are to be galvanized (or equivalent).
- With any structural changes, finish material cracks and minor movements are typical and expected. These are associated with settlement generally observed after construction of an addition or significant remodel.

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

Sincerely,

Harrison N. Luttman, PE
Project Manager
Giles Flythe Engineers Inc.
NC Lic. No. C-2871

