

Jeremy Sherman
Via email

December 19, 2016

Re: 15 Prince Avenue, Peaks Island

Dear Jeremy,

Thank you for the opportunity to work on this project. This letter summarizes structural recommendations for your project at 15 Prince Avenue, Peaks Island.

1. Ridge Beam—25' span

- a. (4) 1.75x16 LVLs together.
 - i. Note that this is expected to sag up to 3/4" under snow loads so be aware of that if there are any brittle finishes like sheetrock attached to the ceiling under this beam.
- b. (4) 2x6 post at either end of this ridge.
- c. (3) 2x10 header over window opening with one king stud and two jack studs each side (six total per side). Each of these triple studs needs to be carried down to the foundation with solid blocking if necessary at the floor/rim.
- d. Each post (four total under the ridge) needs to be on a footing that is 1'-0" square x 8" thick on solid rock. If any of these footings ends up on soil the footing needs to be 1'-9" square x 10" thick. See note (v) below for typical post and pier sizes.

2. New rafters on the SE side, towards the shed—16' span

- a. 2x8 @ 10" or 2x10 @ 16"
- b. You can expect about 1/2" sag in these rafters under heavy snow loads.
- c. Provide solid blocking between rafter ends and Simpson H1 ties at every other rafter.

3. Beam in ceiling of first floor

- a. There is a bearing wall under the rafters noted in (2) above that is on a beam in the ceiling of the first floor. This beam needs to be (4) 1.75x11.25 LVLs together with a (4) 2x post at either end. Each post needs to be carried down to the foundation with solid blocking if necessary at the floor/rim.
- b. Each post needs to be on a footing that is 1'-3" square x 8" thick on solid rock. If any of these footings ends up on soil the footing needs to be 2'-0" square x 10" thick. See note (v) for typical post and pier sizes.

4. New porch / balcony joists (see sketch)

- a. 2x8 @ 16
- b. NE end of these joists bears on beam noted in (3) above.
- c. The middle of these joists bears on the existing SE wall of the house. See (5) below for details related to the new foundation required under this wall.
- d. The ends of these joists will project out up to 4'-6" towards the SE with a diagonal strut support back to the existing wall (see detail).

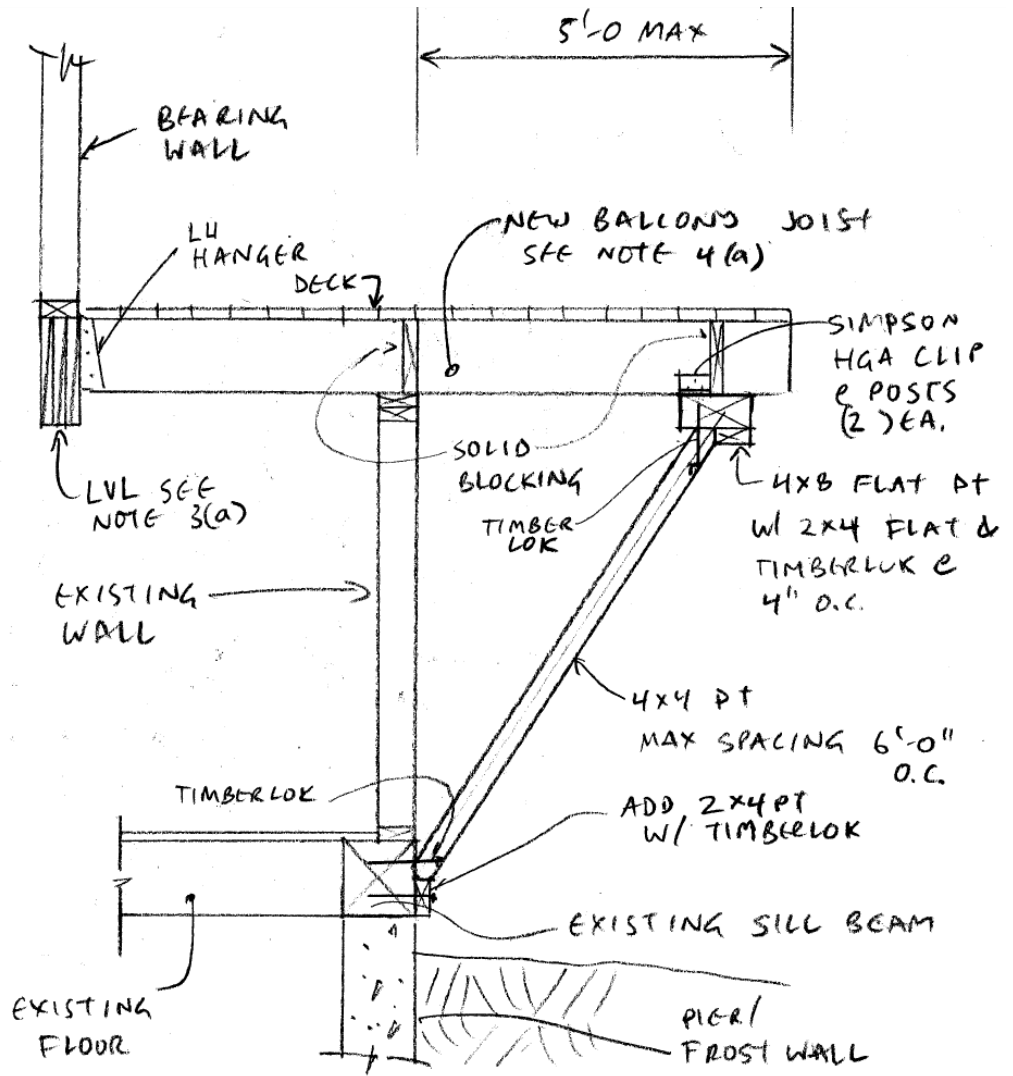
5. New foundation under existing SE wall

- a. Add or replace posts/sonotubes to provide (4) footings total. Each footing to be 9" square on rock (15" square on soil). Piers to be under existing sill beam, max pier spacing 6' o.c. or under splice point in rim, as required. See note (v) for typical post and pier sizes.
- b. Alternate frost wall: 8" continuous strip footing on rock w/ (2) #4 rebar continuous, 12" strip footing on soil. Use 6" or 8" CMU block, solid or grouted solid, to make wall between top of footing and bottom of existing sill beam. Use ladder reinforcement at bed joints between CMU block courses. Shim between top of block and bottom of existing sill beam with plastic heavy-duty load-bearing shims to transfer load to new frost wall.

Notes:

- i. This letter pertains to only to the areas that we viewed on our walkthroughs, including visible areas of the upper floor, first floor, and exterior. We did not review the existing structure other than what is specifically noted above.
- ii. This letter does not consider any other aspects of the existing building including code and zoning compliance, architectural dimensions or details, etc.
- iii. The beams above have been sized to carry actual dead loads and code live and/or snow loads (including snow drift loads).
- iv. Use Simpson LU or similar hangers for rafter / joist connections to carrying beams, where the rafter / joist does not have 1.5" of bearing width on top of the carrying beam.
- v. Where new posts are on concrete provide Simpson type AB post bases. Use 10" round sonotubes between top of footing and to 6" above grade with Simpson type AB post bases.
- vi. Please notify me if any conditions of the existing construction differ from these notes and assumptions.
- vii. All exterior lumber to be pressure-treated or a species naturally resistant to rot & decay (e.g., cedar or cypress).

(continued on next page)



SKETCH OF NEW BALCONY

Please let me know if you need any more information for the structural design of this project.

Sincerely,



Andrew Jackson, PE