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Mr. Lou Marino
Country Wide Homes
1500 Highway 7
Concord, ON
L4K 5Y4

**Re: John Love – Heritage House
Site Visit**

Dear Mr. Marino:

This letter is to report on the observations from our November 19, 2020 site visit to the John Love house on the corner of King Rd. and Greywacke St. in the Town of King. The inspection was performed by our Mr. F.A. Prendergast.

Ground Floor Support Framing

At the time of our inspection there was a large puddle under the house. The house is supported on two steel beams supported on wood cribs (Photo 1). Due to the depth of the water, approximately 25% of the ground floor framing was not accessible. The observations from our inspection are summarized in Figure 1.

1. Sill Beams – The sill beams are generally in poor condition. The undersides of the north, south and west sill beams are partially decayed (Photo 2, 3 & 4). The section losses due to the decay is approximately 50% of the members. The underside of the east sill plate is decayed along the full length of this member (Photo 5). There is 40 to 50% loss of section on this member. The section losses have also resulted in the mortise and tenon connections, that tie the building together, being compromised (Photo 6).
2. Intermediate Floor Beams – The ground floor structure has two intermediate 12x12 floor beams. The western beam, closer to the back of the house, has failed in bending and needs to be replaced or reinforced (Photo 7). The eastern floor beam is partially decayed on the underside of the beam (Photo 8). The mortise and tenon connection at the north and south sill beam have been compromised due to decay.
3. Ground Floor Joists – The floor joists are variable in sizes. They consist generally of solid 2x8 spaced at 30", but within the mix there are 4x8's and some 2x10's. The joists are notched to fit into the mortise and tenon connections at the sill and intermediate beams. A large number of the floor joists having shear failures at the notches (Photo 9).



Based on these observations it is apparent that the ground floor structure is completely inadequate.

Second Floor Support Framing

An opening in the ground floor wall revealed the house to be of plank house construction. The exterior wall consists of continuous 2 ½"x14' planks that are supposed to be nailed to the sides of the sill beams and extend to the underside of the roof joists. Based on the literature, this form of construction was used in smaller buildings and temporary buildings in the 1920's and 30's. Some literature indicate there should be a frame backing up the plank construction. Based on our observations, no such frame exists in this building.

Generally, the condition of the second-floor support framing could not be inspected as it is concealed by the lathe and plaster and drywall. There was a small opening in the ceiling over the ground floor bathroom. The opening revealed the 2 ½"x10" ground floor joists, which are spaced at 24", frame into a 10x10 perimeter beam (Photo 10). Based on the literature the 10x10 beams would be supported by nails from driven through the planks. Thus, the joists are hanging from the beams that are hanging from the sides of the 2 ½"x14" planks.

From the exterior it is apparent, Photo 1, that the planks in the vicinity of the bathroom have been cut off at the ground floor level since the side of the sill beam is visible. Therefore, the roof and second floor are no longer supported by the planks. In other areas the planks are deteriorated along with the sill beams. Deformation is visible on the north side of the structure, which is likely due to the poor connections and deterioration of the planks.

Roof Structure

Like the ground floor, the second floor is generally finished and therefore the roof support structure was not visible. There are some locations where the plaster has failed and there was a small hole in the exterior wall of bedroom 4. From the failed plaster on the ceiling it is assumed there is moisture damage to the roof structure due to the presence of mold (Photo 11).

From the hole in the exterior wall of the bedroom, we noted there is a 2x4 stud wall adjacent to the plank wall on the second floor only (Photo 12). The stud wall stands off the plank wall by approximately 2". Based on the literature we suspect there is a perimeter member fastened to the inside face of the planks that supports the roof rafters. The stud wall may have been erected to assist in the support of the roof rafters as the wall has not been insulated.

As shown in Photo 1, the roof ridge is sagging indicating that the roof rafters have been overstressed for some time.



Conclusion

Based on our observations we conclude that the ground floor structure is deteriorated and completely inadequate. The plank walls are also inadequate and have deteriorated at the ground floor sill level. The roof structure shows evidence of moisture damage and based on visible ridge sag is no longer adequate.

Due to the extent of the deterioration and damage it is not feasible to reinforce the existing members. Therefore, the structure needs to be rebuilt in order to be safely occupied and meet the requirements of the Ontario Building Code.

We trust that this is the information you require.

Yours truly,

Fred Prendergast



Stephen Boyd, P.Eng.

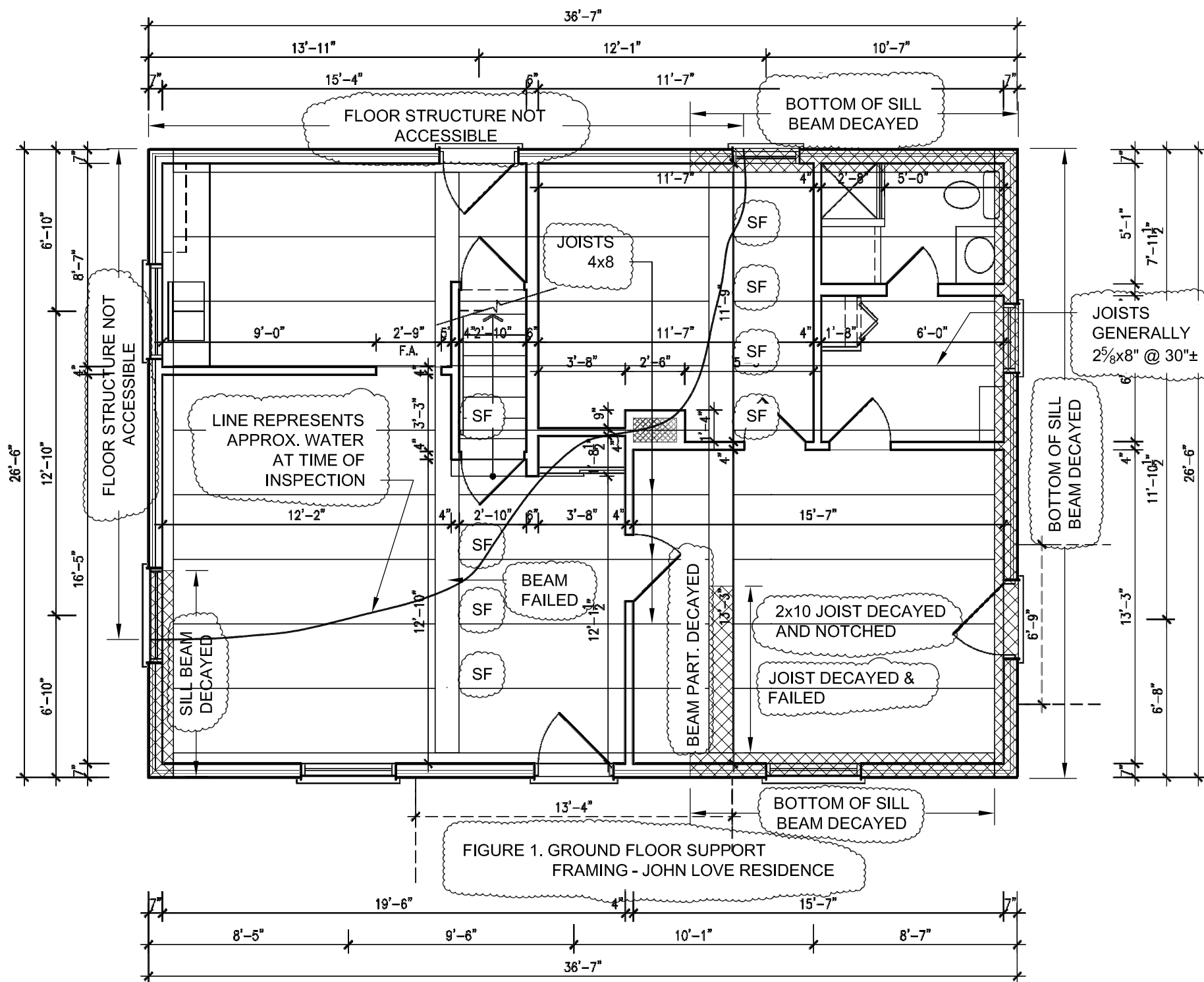


FIGURE 1. GROUND FLOOR SUPPORT FRAMING - JOHN LOVE RESIDENCE



Photo 1. North elevation of John Love house.



Photo 2. Decayed north sill beam and failed adjacent floor joist.



Photo 3. Decayed south sill beam and failed adjacent floor joist.



Photo 4. Decayed sill beam at south-west corner of the house.



Photo 5. Decayed east sill beam.



Photo 6. Compromised connection at south-east corner.



Photo 7. Failed western intermediate beam. Failed at duct.



Photo 8. Decayed eastern intermediate beam at south support beam.



Photo 9. Typical shear failure in floor joist at support. Note decay on underside of intermediate 12x12 beam.



Photo 10. Second floor support structure at north-east corner of ground floor bathroom.



Photo 11. Water damage and mold on lath in bedroom 4.



Photo 12. 2x4 stud wall in exterior wall of bedroom 4.