



August 17, 2022

Re: Residential Repair
612 Jefferson Ave.
Louisville, CO

DAJ Design and Homeowner:

We visited the address above on multiple occasions. The first occasion was to conduct an Historical Structural Assessment of the building on March 31, 2022. The 2nd and 3rd occasions were in June and August respectively. The 3rd visit was conducted once all finish materials were removed at the inside of the building.

The purpose of the 2nd and 3rd visits were to further assess the structure for damage and code compliance. The purpose of this report is to provide structural recommendations for repairing existing damaged structure and to reinforce existing structure to meet the minimum requirements of the IRC code. See below for a description of the different structural elements that are recommended for repair or replacement. In addition, refer to relined plans and structural sections for further information.

Summary of Recommended Repair:

1. Foundation:

- a. The foundation along most sides of the building is in satisfactory to poor condition. Often the foundation doesn't have proper frost protection and appears to have been damaged at the outside face due to water infiltration. Except where we have recommended a complete removal and replacement, have not proposed addressing the lack of frost protection at the existing foundations. This should be considered and discussed with the owner, prior to placement of new finish materials. Frost heave could result in future foundation movement. Contact our office if further repair is desired to mitigate this risk.
- b. Repair along the outside face of the wall is required to protect the existing foundation from future damage. See the structural section provided.
- c. It is our opinion that several areas of the existing foundation should be removed and replaced. Please see the attached Foundation/Main Floor Plan and Structural Sections for these locations and for construction.
 - i. The portion of the foundation below the existing south entrance area/room should be removed and replaced. It is performing poorly, broken and crumbling and continued use will likely result in significant damage to the wood structure above. This includes the south foundation wall and the crawl space wall along the east (southeast portion of the building).



- ii. The crawl space walls at the northeast of the building should also be removed and replaced. The foundations at these locations have sustained significant water damage from the exterior and were further damaged at some point when a new sewer line was installed.
- iii. The east basement wall and the interior retaining walls should be replaced due to improper/inadequate construction. Based on our observation, they do not appear to have been properly built to support the loading from above or to retain the crawlspace soil.
- iv. New footings have also been specified in the crawl space to properly support new beams and posts from above and the existing floor framing above. The purpose of these footings is to properly support structure to meet minimum IRC code requirements. These footings have been designed with an allowable bearing pressure of the 1500 psf. This bearing pressure matches similar bearing pressures used in the buildings directly to the east and west of this building. It is also a common bearing pressure used for spread-footing buildings in the Louisville area.

2. Main Floor Framing:

- a. The main floor framing was in poor to adequate condition. Floor framing consisted of 2x6 joists @ 24" o.c. spacing spanning approximately 14'-0" between existing beam supports. Existing beam supports were also in poor condition. To reduce floor deflection between existing beams, the previous owner/owners had installed wood supports below most joists at mid-span. These supports were fit tight to existing crawl space grade without proper support below.
- b. In the Foundation/Main Floor Framing Plan, we have proposed installing new beam lines to replace the existing beams and at joist mid-span to reduce joist deflection and meet minimum IRC code requirements for deflection.
- c. The new beams and posts are to be supported by new concrete footings, as shown in the plan and in the structural section.
- d. Where feasible, new beams can be supported by stud packs fastened directly to existing concrete foundation walls, see the attached plan. The contractor is to determine if the existing foundation walls are suitable for this proposed connection/construction. Contact our office for review and evaluation as required.

3. Roof Framing

- a. The existing roof framing consisted of 2x4 rafters and ceiling joists at 24" o.c. The existing framing does not meet minimum IRC code requirements and once new roofing and/or interior finish materials are installed, the owner can expect poor performance and damage to finish materials.
- b. In the Roof Framing Plan and sections, we have recommended new beam lines and supporting posts to properly support the rafters and ceiling joists and meeting minimum IRC code requirements.



- c. The new point loads from the new roof recommendations have been coordinated with the main floor and foundation recommendations to be properly supported below by new concrete footings in the crawl space.
 - d. Where existing shed roofs intersect the main roof, recommendations have been made on the Roof Framing Plan for strengthening existing connections and ledgers.
4. Wall Framing
- a. The existing sheathing provides lateral resistance for the building. However, we feel that new ½" gypsum board should be installed on all interior faces of exterior walls to provide additional lateral stability. Fasten with #6x1 ¼" drywall screws @ 4"/12" o.c. (unblocked).

The goal of this report is to describe the structural recommendations for this building, based on our site visits. The recommendations are intended to promote the building's continued safe use, replace damaged or poor performing structure and meet minimum IRC code requirements and are not intended to eliminate all existing and potential future cosmetic defects.

The information contained in this report is the author's professional opinion based on visual evidence readily available at the site, with the removal of finishing materials at the last site visit, as indicated above. Of course, this means there could be hidden defect which are not discoverable at this time and it is the responsibility of the contractor to contact our office for foundation and framing observations, along with any additional poor performing or non-code compliant structure. That is true for most buildings, and an inherent limitation for this kind of report. Should additional information become available or additional movement is perceived, we recommend that our firm be contacted for further review.

Our observation was conducted only to review structural items and did not include mechanical (heating, cooling, plumbing) and electrical systems, subsoil conditions, nor architectural features.

The issuance of this report does not provide the building's current or future owners with a guarantee, certification or warranty of future performance. Acceptance and use of this report does not transfer financial liability for the building or the property to its author, (Jesse Sholinsky), or any other owners or employees of Glenn Frank Engineering, Inc.



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