



July 19, 2019

Tom Bachman, AIA  
GBA Architecture & Planning  
85 Granite Shed Lane  
Montpelier, VT 05602

Reference: Structural Inspection of Strafford Town Hall Building

Dear Tom,

As requested, on July 2, 2019, I visited the above referenced site to complete an initial structural inspection of the building. The purpose of the inspection was to determine if there were any significant structural issues with a planned renovation to the building. Based upon the results of the inspection, it appears that there are no significant structural related road blocks to the proposed renovation.

The planned renovation appears to include the following modifications to the structure:

- Remove the existing front porch sidewalk and piers and replace with a frost protected slab system with frost walls
- Remove exterior stair that provides access to the second floor
- Remove sideporch system including foundations
- Reorganize interior walls
- Cut opening through second floor system for new interior stairs
- Create new accessible restroom addition

Overall the planned modifications to the structure appear to improve the current foundation and first floor conditions but provide some minor challenges for the roof and second floor framing. The existing foundation of the main building is a stone foundation that appears to be in good to excellent condition given its age. At the time of inspection, the crawlspace had a significant amount of silt resting on top of the vapor barrier floor. In addition, standing water was noted above the vapor barrier. The water and silt appeared to be coming from the access hole into the crawl space. At the southwest corner of the main building a cast in place vault foundation has been added. This foundation is in good to excellent condition. Along the north and east sides of the building a concrete walk has been added. The concrete walk has separated from the foundation of the main building and has severe cracks and damage.

The first floor framing was partially exposed in the basement and the framing direction is shown in the attached SSK-1. The second floor framing was not exposed, but based upon nail patterns in the flooring and based upon visible columns in the first floor, we estimate the framing to be as shown in the attached sketch SSK-2. The roof framing could not be observed but based upon the shape of the second floor ceiling and roof, it appears that the roof is comprised of a tied rafter system that relies on the second floor framing to resist the outward thrust caused by the gambrel walls.

Surveying  
Permitting  
Site Design  
Subdivisions  
Timber Design  
Expert Testimony  
Site Development  
Act 250 Permitting  
Forensic Engineering  
Environmental Permitting  
Transportation Engineering  
Structural Inspection Services  
Commercial Building Design  
Construction Oversight  
Building Assessment  
Pedestrian Bridges  
Stream Alterations  
Sewer Design  
Water Supply  
Storm Water  
Hydrology  
Grading

317 River Street  
P.O. Box 1576  
Montpelier, VT  
05601-1576  
phone: 802.223.4727  
fax: 802.223.4740  
[www.dirtsteel.com](http://www.dirtsteel.com)

The planned renovation will remove the damaged concrete from the north and east sides of the building. The removal of the side porch should improve the condition along the north wall of the existing foundation by allowing proper drainage of surface water away from the foundation. The removal and replacement of the front/east porch will improve the entrance significantly. The details of the interface between the existing foundation and the new frost protected slab and foundation should be carefully coordinated to provide proper flashing and proper protection for the existing sill beams.

The first floor framing appears to be adequate for the expected floor loading but some rot was noted in the joists during the inspection. We recommend that a thorough inspection of the first floor framing be completed once adequate access is provided. Rotten members should be reinforced by sistering or replacement. Based upon our estimated thickness of the second floor framing and the estimated size and location of beams, we suspect that the existing second floor joists will be adequate for the expected use. The second floor beam will likely need to be reinforced especially if the existing post is relocated to create even longer spans. The addition of the stair opening will require reframing a portion of the floor to include the installation of new headers and trimmers around the opening. The installation of the stair will also require reinforcement of the interface between the roof and floor at the new opening. Preliminary assessment of the loads indicates that the reinforcements can be achieved with conventional or engineered lumber with some minor steel joinery. None of this reinforcement is beyond that expected in typical renovation work.

The bathroom addition appears to be able to be built using conventional construction techniques and no major structural hurdles are apparent. Overall it appears that the planned renovation is appropriate for the structure and will likely improve the condition of the structure.

If you have any questions concerning this report, please call or write.

Sincerely,



Christopher J. Temple, P.E.

Enclosures:

